Rock Products

DEVOTED TO THE PRODUCTION AND SALE OF ROCK AND CLAY PRODUCTS.

Vol. 1. LOUISVILLE, KY., JULY, 1902. No. 4.

AN UP-TO-DATE MAN.

It is a pretty broad assertion to class a man as strictly up-to-date at this day, for progress is so rapid and incessant that it almost keeps a business man up nights to keep ahead of the other fellow—and the other fellow loses sleep to keep from falling behind—but there is a man in the lime and cement business at Kansas City, Mo., who is clearly entitled to this distinction, and that is William B. Hill, president of the Ash Grove White Lime Association. Mr. Hill is a native of the Buckeye State; he was born at Pleasant Hill, Ohio, October 8, 1854, and was originally christened plain William Hill. It remained for the Concatenated Order of Hoo-Hoo, at its initiation held at Kansas City, November 25, 1893, to round out Mr. Hill's name by conferring on him his present euphonious cognomen of William Bunker Hill, by which name he has ever afterward been known to the Hoo-Hoo brotherhood and others. No distinguishing events are recorded of the early life of Mr. Hill, but from the broad-gauged methods which have characterized his business career, it is evident that his playmates of early days could tell something of the early outcroppings of this trait His first move from his native State was in 1856, when his parents moved to Pontiac, Ill., where they lived on a farm. It was not till 1876 that Mr. Hill really went West—went across the Mississippi river. and then his first halt was at Carthage, Mo., where, probably because it was a kindred industry to farming, he went into the grain and live stock business.

It was in 1881 that he first became interested in the lime business, and in that year he, together with others, started at Ash Grove, Mo., the business which has developed the present Ash Grove White Lime Association. At that time it was known as Hill & Co., and had the very modest capacity of 120 barrels a day. Through the energy and up-to-date methods of Mr. Hill, the business increased, until at the present time the works of the Ash Grove White Lime Association are of the largest in the country and have the enormous capacity of 2,200 barrels a day. In 18[illegible] the the growth of the business and the obvious advantage of Kansas City as headquarters, impelled Mr. Hill to remove the offices of the company to that place, where they have been located since.

While developing this lime business, Mr. Hill has also become iuterested in the cement and plaster business, being to-day one of the Board of Directors of the Banner Cement Co., manufacturers of natural rock cement, and of the United States Gypsum Co., both with headquarters in Chicago. He is also interested in other allied industries, one of which is the cooperage business.

Mr. Hill's distinguishing policy in business, the policy to which can be accredited a large share of his success—the balance comes from energy and keen judgment—consists of three prime factors: First, a constant effort to make the quality of their material of the very best that can be secured; second, to treat all of their customers alike with fairness and justness; and third, to sell only to dealers in this material, believing firmly in the principle that the wholesaler, depending on the retail dealer for the bulk of his business, should not, in any way, or at any time, enter into competition with the retail dealer and sell to the consumer direct, regardless of any temporary profit that might directly accrue.

W. B. HILL, KANSAS CITY, MO.

The first point outlined necessarily involves keeping a sharp eye on the progress and improvements of the day, and that this is done was clearly illustrated recently in an interview with him about cement, which was substantially as follows:

"You know I am a natural cement man, am interested in the business, but I find that most of our competitors don't grind it close enough. Natural cement should be ground to run 90 per cent. on a 10,000-mesh sieve. Many of our friends overlook this in making the cheaper quality and hence they get nearer to the sand product than to a good setting cement. There is nothing like up-to-date methods in getting out your product and selling it. It is essential to have our brand of cement finely ground. Being harder to grind, it ought to be carefully worked because it will last longer when properly handled. There is only one way to meet competition, and that is to raise your grade to meet it."

The same policy has been strictly adhered to in the lime business, and, as a result, Mr. Hill says that their claim to the trade-mark of the Ash Grove White Lime Association, a barrel on top of the world with the words "best on earth," has not been disputed.

The other two prime factors in his policy have been just as strictly adhered to. To treat all customers with equal fairness, is a doctrine about which there is no room for argument, and the other factor, that of selling to dealers only, while some may feel like arguing special privilege points, has been demonstrated time and again as the best method to pursue.

Having been born and bred on the farm, where the soul of man has an opportunity to expand, the character of William Bunker Hill was founded on a broad and substantial basis, and when it was rounded out, polished and sharpened by contact with the business world, it gave him a right, and one which he continues to hold, to the title of "an up-to-date man."

Though painstaking in his business methods, Mr. Hill is a man who does not permit the small things of life to worry him, and socially he is one of the best fellows on earth, acquiring no doubt, through his hearty social disposition that quality which makes him a picture of contentment to the minds of his friends.

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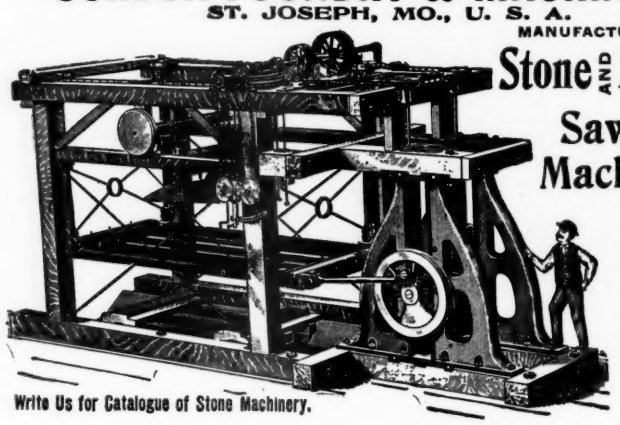

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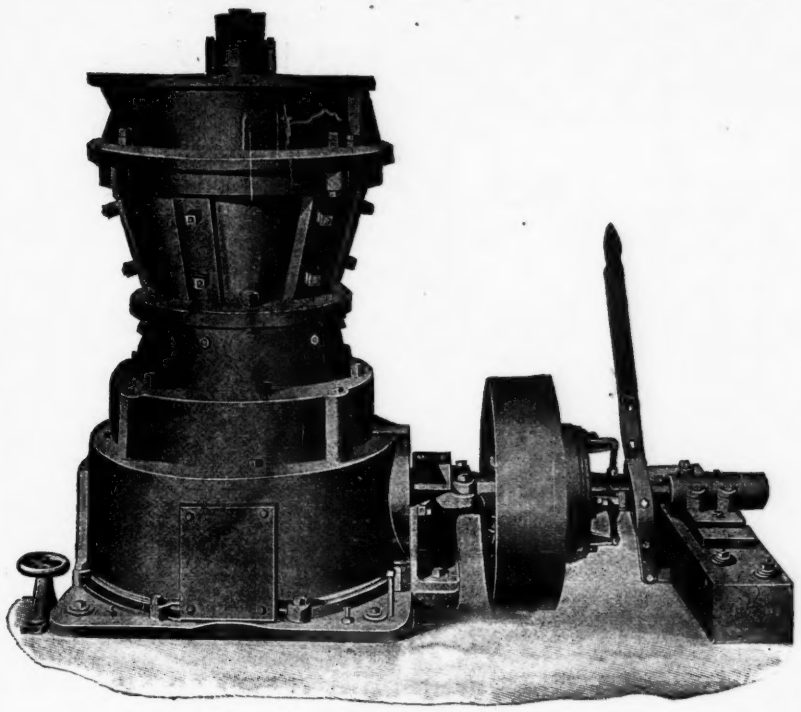

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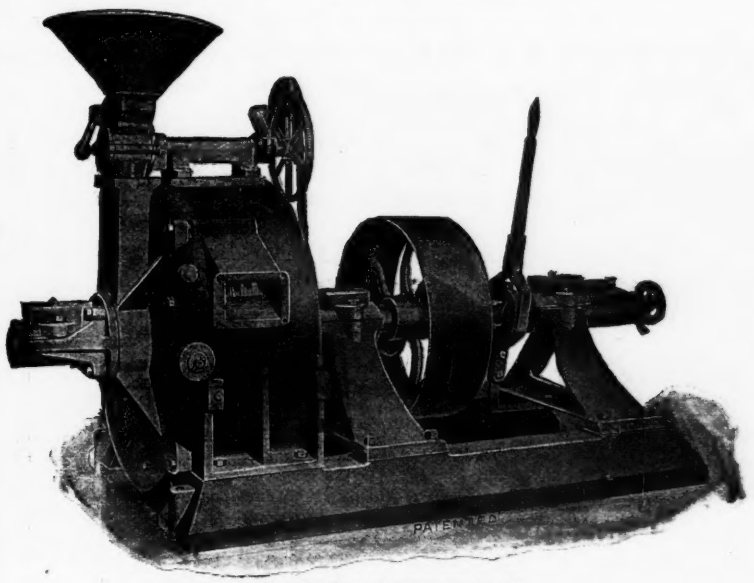

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119 Clayton Street, BOSTON, MASS.

Tell 'em you saw it in ROCK PRODUCTS.

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Warranted Superior to all Other Brands.
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Guaranteed that 90 per cent. will pass a ten thousand Mesh Sieve.

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Staves, Heading and Hoops. . . .

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Promptness a Specialty, Both in Answering Inquiries and in Filling Orders.

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St. Louis, Mo.

One Page, One Insertion, Produces First-Class Results.

STURTEVANT MILL CO.,

CRUSHING AND GRINDING MACHINERY.

Boston, Mass., June 3, 1902.

ROCK PRODUCTS,
Louisville, Ky.:

We are also pleased to advise you that we have made one direct sale from our "ad." in your paper, amounting to $1,000.00, and are getting first-class results generally, Yours very truly,

STURTEVANT MILL CO.
(Signed) L. H. STURTEVANT. Secy.

Their page "ad." was inserted for the first time in our May issue. Our June number was mailed June 2, 1902, so the letter above would indicate that the result named came from May insertion. Let us have your contract for advertising space beginning with our August number, the "ad." forms of which close July 25. Rates on application. Why not let us do as much for you?

THE FRANCIS PUBLISHING COMPANY,

411 Columbia Building, LOUISVILLE, KY.

Tell 'em you saw it in ROCK PRODUCTS.

Rock Products
DEVOTED TO THE PRODUCTION AND SALE OF ROCK AND CLAY PRODUCTS.

THE FRANCIS PUBLISHING CO.,
Publishers.

E. H. DEFEBAUGH,.....*President and Manager.*
J. CROW TAYLOR,.....*Vice President.*
FRED W. RUGG,.....*Secretary.*

A monthly trade journal devoted to the interests of the manufacturers and dealers in rock products and kindred lines, including Lime, Cement, Salt, Sand, Slate, Granite, Marble, Sandstone, Grindstones, Artificial Stone, Emery Stone, Quarries, Monuments, Manganese, Asphalt, Phosphates, Plaster, Terra Cotta, Roofing and Roofing Tile, Coal, Oil, Mineral Wool, Brick, etc.

The mission of ROCK PRODUCTS is to serve the trade in any and every honorable way possible, to promote better profits and make life more pleasant for those engaged in the business to which it caters. With this end in view, criticism is courted, and all are invited to use its columns to further ideas and suggestions for the good of the trade. The office, too, is at the service of the constituents of this paper; so when you want to buy or sell, or merely ask a question, write, and when you are in town, call and make it your headquarters.

"TELL 'EM YOU SAW IT IN ROCK PRODUCTS."

SUBSCRIPTION RATES, $1.00 per annum, postpaid anywhere in the United States, Canada or Mexico; $1.50 elsewhere in the Postal Union. Single copies, 10 cents.

ADVERTISING RATES will be furnished on application.

ADDRESS ALL COMMUNICATIONS TO
THE FRANCIS PUBLISHING COMPANY,
411 Columbia Building, Louisville, Kentucky

LOUISVILLE, KY., JULY, 1902.

OUR SLATE.

The National Lime Association is making progress.

Write for booklet on what the other fellow says about this paper.

THERE is a newspaper report to the effect that a process has been discovered for making wool out of a species of limestone common in Indiana. A fibrous material called rock wool is already being made at St. Louis, Mo., from a combination of granite and limestone, but no process has so far been put in practice that will produce a fibrous material from limestone alone. The proportions that the St. Louis plant is using is two of granite to one of limestone.

THERE seems to be a great future in sight for our Western marble.

A TEST is to be made at Sheboygan, Wis., of crushed slate for street paving.

THE demand for crushed stone for road work is increasing every year and will continue to do so.

THE scarcity of cement, as compared to the demand, is making prices good. It is also stimulating new industries.

THE effect of the coal strike is now reaching beyond the initial industry and is being felt by all lines of rock and clay product industries.

RAIN has not only hampered brick operations in some localities, but has worked direct loss by destroying green brick in many instances.

IF THE inventors keep on finding new things in the way of manufacturing artificial stone, we will soon see the day when scrap rock will be worth nearly as much as building stone.

BETTER quality of work, seems to be the order of the day in practically all lines, and the feeling is growing that the way to meet competition is not by cutting prices, but by raising the grade of your product.

WE WILL be pleased to have the trade discuss the factors that enter largely in deciding the question of making and losing money in the cement business. An article on this subject appears on another page of this paper.

THERE is a newspaper report going the rounds that a Danish master builder has a process for making artificial marble for which the outfit only costs $175.00, and slabs of marble ½-in. thick can be produced at a price of 14c a square foot.

ACCORDING to the reports of the Census Bureau the pottery workers are the best paid wage-earners in the country. It has long been the popular opinion that iron workers were the men who made best wages, but the figures seem to upset the popular belief.

IN THE manufacture of American Portland cement we have another example of the triumph of Yankee mechanical genius, for it can be made cheaper in this country than anywhere else, and other countries are adopting American methods and machinery.

IT WOULD be interesting to know at just what figure first-class asphalt paving can be done, for it is evident that prices are being cut this year, and a knowledge of what is bed-rock prices will be necessary to prevent some of the bidders losing money if they keep on at this.

IN ANY growing industry there is room for a certain number of new enterprises, but when the production outgrows the demand there is likely to be trouble, and that is why periods of depression usually follow periods of marked prosperity—too many new enterprises are often started by such an era.

THE census report on the clay industries, including practically all lines of clay work, shows $148,038,323.00 invested in 6,423 establishments. The value of the product of these is given as $95,533,862.00, of which $39,575,070.00 is paid for wages. Ohio leads in the production of clay products, with Pennsylvania second, New Jersey third and New York fourth.

Tell 'em you saw it in ROCK PRODUCTS.

THERE is hardly a month goes by but what we hear of some new scheme in the way of asphalt paving for curing some of the faults of this paving material. Whether they all hold good or not, there is no doubt but what considerable improvements have been made along the line of asphalt compositions.

INABILITY to fill orders promptly is almost as trying to conscientious men who receive the orders as to the man who is waiting for stuff, but the good business man will make every effort to fill orders as promptly as possible at all times, knowing that a reputation for being slow in filling orders is not a good thing to get business with.

THE Ingalls Building, a new 15-story building project for Pittsburg, Pa., is to be built of concrete instead of steel. It is said that the architects have been hesitating about recommending concrete as a substitute for steel in high buildings, but have done so in this instance, and due, no doubt, partly to the fact that there has been some difficulty in securing prompt deliveries of steel. Concrete has been found satisfactory in low structures, and if it stands this test successfully—the strain incident to a tall building—a few more years will see a demand for cement in the building trades that will exceed even the wildest dreams of enthusiasts on the subject.

THE United States Geological Survey has completed statistics on the cement industry during 1901 from which it appears that the production at home was almost as large as the consumption, the exact figures being: Consumption, 20,573,538 barrels and the domestic production of all kinds of cement 20,068,737 barrels, the total value of which is $16,736,789.00. This report brings out two points; one of which is the fact that the growth of the Portland cement industries has been remarkably rapid of late years, and the other is in the fact that in summing up the total of cement consumed in years gone by we find that natural rock cement has played an important part, the exact figures being as follows: Up to January 1, 1902, the total consumption of all kinds of cement in the United States amounted to 270,760,382 barrels, of which total the natural rock cement furnished 71.67 per cent.; imported Portland cement, 13.54 per cent.; domestic Portland cement, 14.79 per cent.

The production of Portland cement in the United States in 1901 was 12,711,225 barrels, an increase of 4,229,205 barrels, or almost 50 per cent. over the production of 1900; it was valued at $12,532,360.00, as against $9,280,525.00 in 1900.

In 1890, 16 works produced over 335,000 barrels; in 1894, 24 works produced over 798,000 barrels; in 1899, 36 works produced over 5,652,000 barrels; in 1900, 50 works produced over 8,482,000 barrels; in 1901, 56 works produced over 12,711,000 barrels.

For the years 1897, 1898, 1899 and 1900, the imports of cement into the United States exceeded 2,000,000 barrels annually. In 1901, the imports were a little under 940,000 barrels. This remarkable disproportion is explained when we find that the percentage of the consumption of domestic Portland cement has reached from 13.2 per cent. in 1891, to 34.7 per cent. in 1896; to 73.9 per cent. in 1899; to 79.1 per cent. in 1900, and to 96.2 per cent. in 1901.

During 1901, 60 works produced 7,084,823 barrels of natural rock cement, valued at $3,056,278.00 as compared with over 8,383,000 barrels produced by 64 works in 1900, and with 9,868,000 barrels produced by 63 works in 1899.

The production of slag cement in 1901 amounted to 272,689 barrels, valued at $198,151.00, as compared with 365,601 barrels, valued at $274,208.00 in 1900.

Letters From the Trade

An Excellent Brick Business.

H. D. Durr (brick manufacturer) Ocklocknee, Leon County, Fla.—Business in my line is better than I have ever known it before, and the prospects for the year are very good.

Collections Unsatisfactory.

C. S. Freeman, Scottsboro, Ala.—Early in this year I contemplated making some improvements in my plant, but my conclusions for work already delivered are so unsatisfactory that I have postponed any improvements indefinitely.

No Trouble in Getting Stock.

Fred M. Schlimgen, Madison, Wis.—Business has been very good so far this year, and the prospects for the summer and fall trade are fair. We have been getting material and finished monumental work quite promptly this year.

Is Moving and Working a New Quarry.

Carl T. Wells (granite contractor), Redan, Ga.—Trade is fair here and the prospects are good for it to continue so in the granite business for some time. I have opened a quarry of very fine building stone here, of a light gray uniform color, and will move my cutting shop here from Stone Mountain.

Changes in Firm Name and Enlargement of Works.

Phil F. Stifel, St. Louis, Mo.—The firm of Stifel & Rickert has been succeeded by Phil F. Stifel. We are putting in new boilers, pumps, etc., at our quarries at Markus Avenue and Natural Bridge Road in St. Louis, and are also putting in new machinery and installing a crushing plant at Granite Bend, Wayne County, Mo.

Are Improving and Spreading Out.

Pittsburg Clay Pot Co., Pittsburg, Pa.—We are repairing a part of our works that was damaged by fire last October, and are also just starting a new set of machinery in our No. 3 block of buildings, which consists of an extra engine and mixing machinery more than we had before. Our main power plant is not finished yet and it is probable we may decide putting a larger engine and boiler capacity in than was in the factory before the fire. We will also be buying some additional crushing and grinding machinery.

Have Rebuilt Lime Plant.

Mason City Lime and Cement Co., Mason City, Iowa.—We notice in your June number your account of the fire in A. I. Lein's lime kiln, and we wish to say that the Lein lime kiln is now, and was at the time of the fire the property of the Mason City Cement Co. We have finished rebuilding and making repairs and are in a better shape for business than before and are operating at full capacity. This plant was established in 1875, and is getting a reputation of producing a quantity of both white and brown lime that ranks with the best in the market.

An Electrically-Operated Cement Plant.

The Colonial Construction Co., Hudson, N. Y.—We have acquired about 1,100 acres of land, containing suitable rock and clay for the manufacture of a high grade of Portland cement. Our plans are about completed, and we are commencing the excavations for the foundations of the buildings, which will be built of steel, cement and brick. Our present plans call for a factory that will have an output of 6,000 barrels a day, with a view of increasing the output, if necessary, to double that amount. The initial plant of 2,000 barrels a day will be rushed to completion, so as to be ready to furnish cement at the opening of the season of 1903. The additional machinery required to produce an output of 6,000 barrels will be installed as rapidly as possible. The clay and rock is carried to the factory by means of a cable tramway. The machinery will be all operated by electric motors, direct connected. There are three 500 k. w. generators of the engine type, connected to large cross-compound condensing engines. Power is distributed from this point to machinery buildings and to the quarries. The location of the cement works is at Hudson, N. Y., which is the head of navigation for ocean-going vessels. The company has a building site comprising eighty-two acres of land, with 1,100 ft. of dock front on the Hudson River, with a depth of water of twenty-six feet. The New York Central and Boston & Albany tracks cross the company's property, providing excellent shipping facilities by rail or water.

Warners Full of Business.

The Charles Warner Co., Wilmington, Del.—We find everything in building lines extremely active, and it is only by the hardest work that we are able to keep up with our orders in any reasonable time. If the coal strike does not interfere with business in general, this condition will, in all probability, continue the balance of this year.

So far as our lines are concerned, we have practically contracted for all the cement for this year covering the several brands we handle, viz., Nazareth, Sovereign, Royal and Warner's Improved Hydraulic. All terra cotta pipe products are moving well, and in our lime business particularly we are having the largest line of business we ever experienced. Even with our new kilns at Cedar Hollow plant in Pennsylvania, which now give us a total output of 4,000 bushels of lump lime a day, and over 100 tons of "Limoid," we are still unable to keep up with our orders. Lime for use in agricultural purposes has also had a big run this spring, and our own shipments have averaged from the several plants we control from fifteen to eighteen carloads a day. Our fire in Wilmington last fall resulted in extensive and improved new warehouses for our retail and less than carload shipments through the Delaware Peninsular Several improvements made in operating our several power plants by electricity, enable to greatly improve ous service over what it was previously. We also find our retail trade through New York and vicinity is rapidly increasing owing to the facilities given by our new warehouses in Jersey City, which act as a distributing point for large contract work.

The Baltimore Market.

BALTIMORE, MD., June 20.—We have to report a steady advance in the price of American Portland cement, the present quotations being $1.55@1.75 a barrel at the mill for cement in bulk.

The best brands are now being held at $2.25@$2.50 a barrel in wood at Baltimore, depending on the size of the contract.

It may soon be possible to import standard German cements to compete in price with the best American brands, and with better assurance of prompt delivery.

The coal strike will have a tendency to reduce the output of the cement mills, but the general effect will be demoralizing to the trade, and injurious to the building interests of the country.

The Baltimore market prices are as follows:

PORTLAND CEMENT.

	Per Barrel.
German, in wood	$2 50@3 00
American (well seasoned) in wood	2 25@2 50
American (ordinary) in wood	2 00@2 25
American (ordinary) in paper	1 80@2 00
American (ordinary) in cloth	1 70@1 90

NATURAL ROCK CEMENT.

	Per Barrel.
Standard brands, in wood	$1 20@1 50
Ordinary grades, in wood	1 00@1 25
Ordinary grades, in cloth	80@1 05

All cloth bags charged extra at 10c each.

LIME.

Texas Alum (per bushel)	$0 18@ 22
Texas Alum (per barrel)	75@1 00
Frederick County (per barrel)	85@1 10

PLASTERING HAIR AND FIBER.

Goat Hair (per bushel 7 pounds)	17c@28c
Cattle Hair (per bushel 7 pounds)	14c@25c
Cocoa Fiber (per bushel 2 pounds)	10c@15c

The secretary will be glad to reply to those desiring information in regard to cement pavers' tools and concrete mixing machines, and will also send a list of the principal dealers in lime and cement to those desiring same.

THE LIME AND CEMENT EXCHANGE OF BALTIMORE CITY.

Tell 'em you saw it in ROCK PRODUCTS.

The News From Quincy.

QUINCY, MASS., June 24.—There has not been as much business in granite during June as there was during May, which is easily accounted for from the fact that the orders for the Memorial Day work this year were the largest in the history of the trade. Business has now returned to normal proportions with enough work on hand to insure a good trade throughout the summer and fall. In fact, people here all seem confident that there is an era of prosperity ahead.

There has been under way here for a year or more a gigantic undertaking which is proving a source of profit to local quarry owners. The Metropolitan sewer, which, when completed, is to handle the sewerage of the majority of the inland cities of this State, is to have its outlet on this city's water front. In conection with this outlet a mammoth break-water is in process of construction at Nut Island to expedite the proper carriage of this water to the Atlantic Ocean, and this work is calling for thousands of tons of rough granite. John Fallon & Sons have the contract to supply this material, and their wharf at the foot of Brackett Street presents a very busy scene. An average of 400 tons of stone is being loaded on sloops daily and transported to the work. In this work they have a unique method of weighing the stone. The vessels used in the transportation of material show markings, fore and aft, of the standard weight of a boatload. All that is now required in the daily loading of each, is to weight the vessels with rough granite, until several or all the numbers disappear, so that in an entire or partial boatload, the exact weight of the stone is easily obtained. Messrs. Fallon & Sons expect to be the best part of the year doing the job.

The teamsters, strike which at one time threatened to curtail the granite business generally, has been settled amicably and without loss of time.

J. R. Qualey has sold his manufacturing plant in South Quincy to the George H. Hitchcock Granite Co., of Boston. The new concern will operate the plant and use the extensive yard area for the exhibition of finished cemetery designs. Mr. Qualey will not quit manufacturing, and already has a new shed about ready for occupancy.

The Granite Railway Co. has declared a dividend of $2.00 per share to go into effect July 1, and payable to all stockholders on record June 21, 1902.

Swingle & Falconer have in operation at their extensive quarry in West Quincy a new derrick of Oregon pine, which is the largest in use in the city. From its position on the mountain, it is plainly seen from ships entering and leaving Boston harbor.

McDonnell & Sons have opened a new quarry which yields an extra dark Quincy, and are now in a position to fill their increase of manufactured orders with greater celerity, as well as to supply the trade with prime stock.

The Quincy Granite Quarries Co. have erected a large stone crushing plant off South Street, so as to better fulfill their contract of supplying the Fore River Ship and Engine Co. with broken rock for improvements at their plant on the water front.

LaClau Bros. have erected a new and modernly-equipped plant on Robertson Street, New Quincy.

Sexto Lopez, the Filipino representative, was the guest of Leuther S. Anderson, manager of the Granite Railway Co., during the past month. The visitor from the far East manifested keen interest at the number, size and workings of the city's extensive quarries.

C. G. Blake, Chicago, Ill.; Thomas Fox, Concord, N. H.; F. D. Fuller, Nashua, N. H.; C. Roger Smith, Middletown, N. Y.; H. Adler, New York City; Charles Masslen, Hartford, Conn.; R. J. Haight, of the *Monumental News*, Chicago, Ill.; Binswanger & Goldsmith, Brooklyn; N. Y.; J. L. Cole, Mattapoisett, Mass., and Mr. Ream, of Townsend, Towsend & Co., New York, were among those to visit the trade during the past month.

The granite shipments in pounds from the various depots for May were as follows:

Quincy Adan s	6,723,336
West Quincy	7,710,785
Quincy Granite Quarry Co	3,340,645
Total	17,774,766

Needs a Branch Railroad.

W. J. Turner, Lawrenceville, Ga.—I have very fine granite, but it is too far from the railroad to be of any profit to me at present.

Up Syracuse Way.

SYRACUSE, N. Y., June 15.—One of the largest manufacturers of plaster in the State is the Paragon Plaster Co., with offices at the corner of James and North Warren Streets. The company has a sand bed on Black River in the Northern part of the State, covering seventy acres of high-grade sand. It is said to be the best in the world. The sand is loaded onto boats by a recently installed system which enables the loading of a large number of boats every day. The material is brought to the Syracuse plant by canal. The unloading system has also been rearranged. The Syracuse plant is 600 ft. on the canal and the same on the railroad. W. K. Squiers is manager of the concern. The company is also agent for the Atlas Cement Co. in two-thirds of New York State, and for a brick and terra cotta company.

The Syracuse Mantel Tile and Marble Co. has secured a contract for $3,500.00 for putting in marble wainscoting and tile floors in the Fort Stanwix Hotel at Rome. The company has also secured the contract for the tile floors in the county clerk's office at Lowville.

The Central City Roofing Co., of 430 Canal Street, is doing a large business in asphalt roofing and paving.

C. J. Sullivan, of 112 West Genesee Street, is a large dealer in wall plaster, Portland cement, sewer pipe, fire clay, Rosendale cement, cold water paint, gravel and sand.

The Syracuse Stoneware Co., at 401 Fulton Street, reports a bigger business than they can fill the orders for. The company deals in all kinds of stoneware, fire brick and sewer pipe. There has been trouble in getting cars enough to keep things moving. Stone drinking vessels for poultry are popular and the sale is large.

The Syracuse Granite and Bronze Construction Co. has sheds at Fulton and Wolcott, N. Y., the office being at 303 University Block. The concern deals in monuments, medallions and tablets.

The salt production in this city is not nearly as large as it used to be, although several companies continue to make it. The leading firms are the New York State Salt Springs, 225 North Salina, Onondaga Coarse Salt Association, 1 Clinton Block, and the Salt Springs Solar Salt Co., 939 Onondaga Savings Bank Building.

Syracuse brick manufacturers are enthusiastic over the amount of building that is being done. It is the general verdict that they will have all that they can do this season. The largest plant in this vicinity is that of the New York Brick and Paving Co. The clay is obtained from a place about thirteen miles from Syracuse, and is loaded onto boats and shipped here. The plant is equipped with kilns of the most approved pattern, and a large force of men is kept at work the year round. Half of the clay that is shipped daily is stored in the yard for winter use, the rest being made into brick immediately. The waste brick, not suitable for paving, is crushed for macadamizing.

The Onondaga Vitrified Brick Co. has a plant at Warners, with its office in Syracuse. J. Frank Plumb is the manager. Connected with this company is another concern which deals in web tile.

Among the makers of common brick are George W. Pack & Son, Ballard & Co., C. & L. Merrick and Preston Bros.

A. J. B.

The San Pedro Salt Industry.

The San Pedro (Cal.) Salt Co. is said to be fencing in 1,600 acres which will be subdivided with dykes for solar salt manufacturing. A large ditch over a mile long for conducting sea water to the pumping station is in process of digging. The sea water brought in by the ditch will be pumped into the several tanks where the sun will perform its duty of removing the water from the salt. The tanks will be so arranged that when the evaporation from any one of them has gone sufficiently far the concentrated brine may be drawn off into a crystalizing tank for final drying. Nearly 100 men are employed on the construction, and a large quantity of lumber has been delivered. A lot of the dykes have been constructed. Several months will undoubtedly be required to get the plant into complete operation, and it is probable that commercial salt will not be obtained in large quantities there before next October or November.

Cement.

Some Factors in Cement-Making.

Do you ever have the question sprung on you suddenly as to what are the prime factors to be considered in a project to manufacture cement?

The phenomenal increase in the consumption of cement in the last few years, together with the remarkable growth of the cement manufacturing industry in this country, makes this question one which every man interested either directly or indirectly in the use or manufacture of cement might well ask himself if no one else asks it of him.

That Air of Technical Mystery.

There has been ever so much said about cement and its manufacture, but it is all so obscured by technicalties that the idea of manufacturing cement takes on an air of mystery to the average mind. Articles on cement generally begin back in the days of Smeaton and Aspdin, and then come down to the chemical properties of the cements of to-day in a manner that reminds one somewhat of the old-style orator at the Fourth-of-July picnic, who always began with the landing of the Pilgrims, then literally tore down through history by oratorically riding the deeds of glory of which we were all familiar in a way, and wound up by shaking the flag—it was glorious, and was accepted without question, but most of us never gave it serious consideration.

The Profit Account Is the Main Point.

There is no question but what we need, and must have along with its manufacture, a technical knowledge of cement. Usually a laboratory is maintained in connection with an up-to-date plant, and the chemical properties are properly looked after, but what the prospective stockholder wants to know is, where, what and how money is spent in the manufacture of cement—the prime factors in determining whether or not it can be made in a certain locality at a profit for a given price. The ratio of lime to the silica and alumina, while it is very important in the cement, is not of as much importance to him as the *ratio* of investment to the profit account, for men make cement with a view to making money, and that's a point that should never be lost sight of.

Fuel the Leading Factor.

One would naturally think that the first point for consideration in a project to manufacture cement would be raw material, and it is, but there may be some difference of opinion as to what constitutes the raw material. Did you ever consider coal as a raw material for manufacturing cement? If not coal, it must be some other fuel that will produce a temperature of 2,000 degrees, Fahrenheit, for that is the heat required to manufacture Portland Cement—and it does not matter what or how much other raw material you have, if there is no fuel available you can not make cement, and so, whether you are willing to concede coal as a raw material or not, fuel is an important and essential factor in the industry.

In making cement from natural rock the fuel factor is not as large as it is in making Portland cement, for the burning is done at a lower temperature, but the item of fuel even then is of such importance that if your competitor has an advantage in this factor, in the way of cheaper coal, or other fuel, he can come mighty close to putting you out of business at times.

I have just been talking with a man who is interested in several Portland cement industries, about fuel as a factor, and he says that over fifty per cent. of the cost of manufacturing Portland cement is in the item of fuel. The industries with which he is connected use coal, and he said that the difference in the price of this article delivered at one of their plants and delivered at another plant under consideration was such that it would make a difference of 30c a barrel in the cost of manufacturing cement. If the proposed plant should make 2,000 barrels a day, this would mean a saving of $600.00 a day, and that's no small item. However, he might have been a little too enthusiatic on this subject, and I do not favor extravagant statements, but it emphasizes the fact that the fuel may easily be a deciding factor in manufacturing cement. And, when you are already manufacturing cement, any system or device that will reduce the fuel expense of the work may be worth enough to be a deciding factor between profit and loss in the business.

How Plenty of Oil May Help Matters

Somehow I have an idea that oil will enter as quite a factor in the cement industry in the near future at the fuel end. I know that erecting engineers who make a specialty of cement plants are looking longingly toward the Southern oil fields, and when any of them find assurance of a flow of oil that is available in the same locality with material that will make cement there will be something doing. Moreover, even if oil does not come in largely as a direct factor, I am thinking that it will count indirectly by coming in so much as a fuel for other purposes that coal will be cheaper, and thus the fuel problem will be reduced just the same—only not as much.

A Question of Marl and Rock.

A point worth remembering along this line, too, is that the factor of fuel is not all embodied in the price and availability of the fuel itself, but may be affected by the other raw material in use. Take, for illustration, a plant making cement from marl and clay, and another one making cement from limestone and clay, and there is room for quite a difference in the fuel required. This cement man I was talking to about the fuel problem, says that he believes it takes nearly 25 per cent. more fuel to burn marl and clay than it does if limestone is used instead of marl—because of the moisture in the marl. But I am thinking that this depends on the process, and even then you can not look at the matter just that way, for it costs more to quarry the limestone and crush it than it does to mine the marl, and it is a question of which costs more. Where fuel is comparatively expensive there is a chance in favor of the limestone, but if the marl beds are near cheap fuel the favors are likely to be the other way. So you see there are factors that must be considered together—wheels inside of wheels—and these are the things we need to know more about.

The Freight Question.

Some say that the next factor to fuel in locating a cement plant is in the freight question, and there is no doubt but what it is an important factor in the industry, but it is a factor in distribution, not in manufacturing, and, though it should be duly considered, it is not the question under discussion just now—we are talking about factors in manufacturing—and beginning at the raw material end.

The Raw Material for Cement.

In the way of raw material for cement, there are numerous formations of natural hydraulic rock that form the base for manufacturing "natural" cement. These formations are not found everywhere, nor are they always such as will make the same grade of cement, but they are much better here than in Europe, and formations that make a really good cement are quite numerous. In fact, the hydraulic limestone of this country has furnished the raw material for an enormous quantity of cement. In proposing to manufacture Portland or artificial cement there is present in this country a variety of substances that may be combined to produce the desired result. Clay is one of the substances generally used, and clay is so common that one might conclude that any man could start a cement factory in his back yard. The raw materials used in this work generally consist of clay combined with marl, limestone or chalk, but this is not the limit of the raw material, for they are making cement from furnace slag, and from various combinations; still these will answer for the present consideration.

Handling Material by Machinery.

Given the raw materials, the problem that confronts a man proposing to manufacture cement involves taking up the raw material and transporting it to the manufacturing plant, and there properly mixing, calcining and grinding it to produce a powdered material that will stand the tests, both chemical and mechanical, required of cement. The transportating and handling of the material must be done almost entirely by machinery to keep the cost down to a basis that will make the manufacture of cement possible at a price which the consumer can afford to pay, because the cost of other building material must be taken into consideration. Then comes the big item of fuel, and after the burning comes the grinding, another big item.

Tell 'em you saw it in ROCK PRODUCTS.

The factors that enter as inner wheels to the factor of cement grinding are machinery cost and power cost. Everything must be done by machinery, and the process is rather a long one of gradual reduction, calling for a big machinery expense in the matter of first cost alone. Then the grinding of so refractory a material as this calls for a wear and tear account that would scare some men—say a man accustomed to grinding grain—out of his boots.

The Problem of Grinding.

And the grinding must be done fine, but if made too slow, the power cost piles up. On the point of how fine cement should be ground, engineers in the industry say that it is impossible to get it too fine, and that the finer the better. The standard set which one must not ordinarily fall below is to get it to bolt through a 10,000-mesh sieve—one with 100 meshes to the linial inch or 10,000 to the square inch, in Portland cement. This grinding process applies just the same in making natural cement, only the manufacturers in this line do not seem to have reached the point of grinding down as fine as the Portland people, and I am thinking that they are losing out by not grinding at least somewhat finer than they do. I have just read the description of how natural cement is made in one plant in which it is stated that 90 per cent. passes through a sieve of 2,500 meshes to the square inch. This description was written some years ago, and it is likely they are grinding finer than that now, but it seems as if the natural cement people are pretty generally economizing falsely by not grinding fine enough.

It is much easier, however, to talk about how fine cement should be than it is to make it fine, for the cost of grinding a little finer may take all the profit off of the product if fuel and power comes high. Where there is cheap power, like water power, there is , therefore, a factor of advantage that is worth more than a passing consideration, especially as compared to getting coal from a distance for both power and burning purposes. The ideal location, however, for a cement plant of to-day is where either natural gas or oil is to be had cheaply. This is out of the question, though, in many places, and it is a question of figuring on the factors as they exist to see if there is a safe margin for profit on the capital necessary to build and operate a plant. And now we come to what is really the first factor in the matter—it takes lots of money to build a cement plant. After you figure out that there is money to be made at manufacturing cement in a given locality it requires practically a half million dollars to operate, and there is no way of getting around it.

The Item of First Cost.

To build what is considered an up-to-date Portland cement plant, one that will do the work in a manner sufficiently economical manner to in any measure insure the success of the undertaking, costs about $400,000.00. It does not require so much as this to build a plant to manufacture natural cement, for the mixing process is not used, and the burning does not require as much fuel or heat—the process is more like that of burning and grinding lime—but even these cost quite a lot of money, especially if the grinding is carried down to as fine a point as it should be. Some man may some day invent a process for making cement with a small outlay of capital, but if he does it will be a radical departure from the prevailing ideas of the day, for the tendency is toward more elaborate and expensive plants. A Portland cement plant costing $400,000.00 should turn out about 2,000 barrels of cement a day. This is generally accepted as the most practical size and capacity, and to increase the output consistently with the present practice calls for nothing more or less than the duplicating of the plant. It may be possible to hang on a machine here and there and stretch the output a little, but the better plan seems to be to tackle the matter as an entirely new plant when a greater output is desired. C. M.

We are informed that F. C. H. Schweyer has resigned his position as superintendent of the Phoenix Cement Co., at Nazareth, Pa., and George Lindenmoyer has been appointed to succeed him.

Tthe American Cement Burial Vault Co. has been incorporated at Indianapolis, Ind., with capital stock of $10,000.00. The incorporators are: Geo. B. Okay, Albert Goddard, Chas. Vollroth and Louis Nathan.

The American Cement Post Co., which is building a plant at Janesville, Wis., has been having some trouble with the work of construction on account of heavy rains which have been undermining the walls and doing other damage.

The Twentieth Century Cement Co., Flint, Mich., will build a new cement plant near Trenton, Michigan.

The Catskill Cement Co., Smith's Landing, N. Y., is building an addition to its plant to increase the capacity.

The Texas Portland Cement and Lime Co., Galveston, Tex., has increased its capital stock from $300,000.00 to $400,000.00.

J. H. Turner, James Allison and Geo. M. Dickinson will erect a plant and manufacture artificial building stone at Wichita, Kan.

The Mattins Creek (Pa.) Portland Cement Co. is preparing to double its capacity so that it can turn out over 3,000 barrels of cement a day.

The Cleveland Concrete Building Block Co. has been incorporated at Kittery, Me., with a capital stock of $150,000.00. Chas. C. Smith is president of the company.

Manager Bowden, of the Wellston (Ohio) Portland Cement Co., Detroit, Mich., says they are making about 400 barrels a day, and will double their capacity during this year.

Reports say that Frank Nelson has bought a half interest in the Cement Paving Co., Lancaster, Ohio. He bought the plant from Mr. Litterall, who has started a plant of the same kind at Athens.

M. U. Demarest, of Elkhart, Ind., has been appointed receiver of the Monolith Portland Cement Co., which was organized about two years ago with a capital stock of $500,000.00. They proposed building a plant at Bristol.

The Midland Portland Cement Co., with general offices in the Law Building, Indianapolis, Ind., have let a contract for the erection of a Portland cement plant at Bedford, Ind., to the Osborne Engineering Co., of Cleveland, Ohio, and this company now has a force of men at work. We are informed that this new plant will be a 10-kiln plant with a capacity of 2,000 barrels a day, and it will be strictly modern in every respect. The officers of the Midland Portland Cement Co., which has a capital stock of $1,000,000.00, are: Orlando M. Packard, president; Frank W. Spacke, vice president and treasurer; Vanton O. Foulk, secretary.

PLASTER.

S. W. Beyer, Assistant State Geologist of Iowa, states in a newspaper interview that the last year has been a record-breaker in the plaster business in the Fort Dodge District. Seven companies are in operation in this district, and during part of the year there was considerable competition, which at one time ran the price as low as $3.50 a ton for retarded plaster, but later in the season the prices went up to $5.00. About 75 per cent. of the output was shipped as unretarded to be mixed afterwards, and to be used in plastering. It is said that less than one per cent. is used for any other mechanical purpose than plaster.

Cheney & Rickerson, manufacturers of Roman wall cement for plastering walls and ceilings, dealers in a general line of masons' supplies, Troy, N. Y., have a side line in the manufacture of asbestos boiler pipe cover, which is known as "Arctic Asbestos Cement Covering." This is the dry cement which is prepared by mixing asbestos fiber and other non-conductor and cement materials in the proper shape for use as a covering for boilers and steam pipes, etc., of which they have the following to say: "When mixed with water to make it of a proper consistency it is very easily applied by any one, either by hand or trowel. This covering will trowel down smooth and makes a fine white finish, which saves the expense of a finishing coat, which material is costly and takes skilled labor to apply. This is all saved by using the Arctic, as our material is such that the first and last coat is all the same, and can be made with a trowel as fine as the costly and expensive finishes. Our material is composed of ingredients so when it is applied it sticks; is very elastic which permits of expansion and contraction without cracking, breaking and dropping off. We suggest in applying our Arctic asbestos cement covering, better results can be obtained by applying it over an air space, formed of wire cloth and studs. A piece of small pipe can be laid length ways of pipe to be covered, then wind your wire screen which is to be plastered on around the pipe, thus forming an air chamber between the article to be covered and the covering. We put this up in bags 125 lbs. each or will put it up as purchaser may desire. When goods are put in paper, 60c per ton additional to regular quotation is always charged.

Tell 'em you saw it in ROCK PRODUCTS.

Lime.

Lime as a Fertilizer.

That lime is a good fertilizer for land is nothing new to history, for lime and gypsum plaster were used for agricultural purposes something over two thousand years ago. In England, Germany and France it has long played an important part in this line, as well as in other European countries, and the results were remarkably good in France, where a great part of the land is what is called "granite land."

Lime has been employed for a century in our own country as a fertilizer in some of the Eastern States, and it has proved remarkably successful, especially with wheat. Wheat does not by any means represent the limit for the use of lime to advantage, for timothy, clover, beets and a whole list of other plants are benefited by its proper use. use.

Lime as an Aid to Beet Culture.

As to its use in connection with beet culture, Mr. Babcock, of Westerly, R. I., who did some experimenting in 1896, made the following report:

"I nave raised beets for the past six years with rather poor success. We had to fertilize very highly and market them as soon as they were large enough or they would grow stringy and lose their sweetness. After an experiment last year with lime I concluded to use it on my beets this season. I used about twelve barrels to the acre, slacking with water, using just water enough to leave it dry and fine like meal. We spread it after plowing, and mixed it with the soil by harrowing. The seed germinated much better where the lime was used, and the beets were at least ten days earlier for the market, being of the finest quality. As the season advanced they grew to be immense in size but retained their good qualities to the end of the season.

"In conclusion I would say, that if the farmers of Rhode Island would give lime a trial on beets of all kinds, also in seeding to timothy and clover, they would be surprised at the results."

The Chemical Effects of Lime.

The Agricultural Experiment Station, Rhode Island College of Agriculture and Mechanic Arts, Kingston, R. I., says is regard to the chemical action of lime, that it unites with acid substances in the soil, by which the soil is sweetened or its natural acidity (sourness) overcome or reduced.

In case certain injurious iron compounds are present in soils, these are so transformed by lime as to be rendered harmless. It also acts upon potash compounds in the soil in such a way that the lime takes the place of the potash, setting the latter free for the use of plants.

If lime is present in a soil to which ordinary commercial fertilizers, dissolved boneblack, dissolved bone, dissolved phosphate rock, or double superphosphate, have been added, it is probable that some of the soluble phosphoric acid will combine with lime, in which condition it would be expected to be more readily available to plants than would have been the case had lime been absent, and a more favorable opportunity been given for all of the phosphoric acid not quickly utilized by the plants to combine with iron and aluminum oxids.

The presence of lime in soils favors the decomposition of the organic matter which they contain, and in this process carbonic acid is produced which in turn acts upon the ingredients of the soils in such a way as to render the natural plant food much more readily assimilable. It plays, likewise, an important part in facilitating the change of ammonia into nitric acid, or in other words, in placing at the disposal of plants the stored up nitrogen of the soil, as well as that applied to or left in it, in the form of animal manures, meat, blood, fish, plant roots, etc.

Some of the Physical Effects.

The physical effect of lime on land depends, of course, on the nature of the soil. Lime applied to stiff clays causes them to become more friable, more permeable to the air, easier of tillage, and better capable of supplying water to plants as

needed. Sandy soils, on the other hand, are rendered by it more compact and more retentive of water and fertilizers. On very dry, sandy soils, smaller applications of lime must be made than upon moist ones, and the use of large quantities of lime upon such soils, in single applications, is inadvisable.

A Crawfish Story.

Still, with all the benefits that are to be derived from the use of lime, and notwithstanding the fact that it has been used more or less for ages as a fertilizer, there is not the general knowledge of its qualities among farmers that there should be, for if there was, more lime would be used to-day. Practically every man in the lime business can tell of where, how and when to use lime to advantage, and they are glad to do so when called on, and there is where part of the trouble lies. There was a story went the rounds a few years ago about a timid boy, a noisy darky and the selling of crawfish. The timid boy and the darky were both very poor and were looking for an opportunity to earn a little money. One day they heard that people would buy crawfish, and this put them to work, for they knew where they could catch any quantity of fine crawfish. After supplying themselves with a goodly quantity they started out to market crawfish. The timid boy put his in a bag, threw the bag over his shoulder and walked about the streets all day, and came home at night tired and weary because no one had asked to buy crawfish, or even asked him what he had in the bag. The darky, being characteristically noisy, put his stock in an open basket, and as he started out said: "Now jis' watch me yell—crawfish."

Spread the Gospel of Lime.

The gospel of lime and its qualities as a fertilizer should be spread, spread thoroughly and in the quarters where it will do good. It is not enough that the manufacturers of lime know that it will do this and that—the prospective users must know it, and should have the knowledge brought home to them in such a way that they will take an interest in it—not a passing interest, but a purchasing interest. There may be various ways to arouse this interest, and an exchange of ideas from the trade on the subject would be interesting, and would likely develop something.

Some firms are pushing lime individually, and are doing a good work. A sample of this is to be seen in the pamphlets sent out by the Seneca White Lime Co., of Fostoria, Ohio, which gives information about how, when and where to use lime as a fertilizer. We append herewith some extracts therefrom:

How to Use Lime as a Fertilizer.

"Having known for a number of years the good results to be obtained from the proper use of lime upon the land, it has occurred to us that the principal reasons for its not having come into more general use, were, that as generally used, it is a disagreeable and expensive commodity to handle, and that manufacturers in the Central States have had a more profitable market for their output. The old way of hauling it out on land in lump and piling it in little heaps, covering each heap with earth, then waiting for it to slack before spreading, was both slow and expensive. The other way of putting it into large piles, covering it with earth and slacking it with water, was slower and more expensive. We believe we have solved the problem, by grinding the fresh-burned lime. In this form it is easily handled and will keep longer witnout air slacking than any other form. It is all ready to spread upon or drill into the land. It is thus allowed to slack in or upon the land, which gives the land the full benefit of all the properties of the lime. In this form it can be shipped in car lots, in bulk, in bags or in barrels and in less than car lots in barrels only.

The Quantity Required.

"The amount of lime required depends upon the condition of the land and the crops to be raised thereon. From one to four tons per acre is generally used and this is only necessary to be done in from four to ten years. Where the land is black muck, containing a large per cent. of vegetable mold, a light, top dressing of lime each year is beneficial.

"The crops of celery and onions have been more than doubled on this land by a judicious use of lime. However this kind of land should first have one good, heavy dressing of lime.

"Heavy and sticky clay and sour land also requires a heavy dressing. Land upon which sorrel, mullein and red top grow and which is generally considered worthless, can be made valuable and productive by a heavy dressing of lime. Such land can be made to raise large and heavy crops of clover and timothy. To obtain best results the use of manure and other fertilizers should be continued."

Mining Lime in the Far East.

A writer for the *Oil, Paint and Drug Reporter* makes an illustrated description of how lime for whitening purposes is used in the equatorial islands in the Far East. We wish we could read between the lines, for it would be interesting to know of what this deposit consists, that he calls lime. Lime, as we generally understand it in this country, is only obtained by burning limestone. This writer, however, was evidently writing from a chemical standpoint, as he was writing for an oil and drug paper; but for the chemical definition of the word "Lime," we are referred to Calcium Oxide, and this is obtained by heating carbonate of calcium to a redness. This makes the matter rather confusing, and what we would like to know

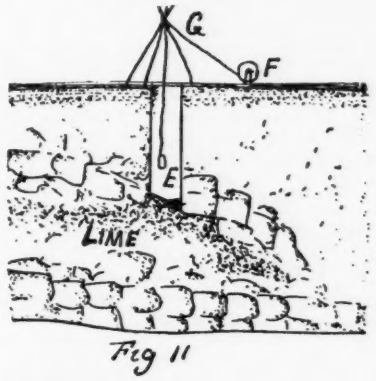

Fig 11

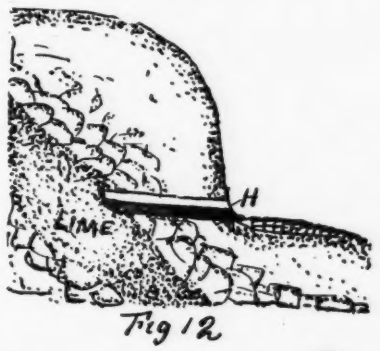

Fig 12

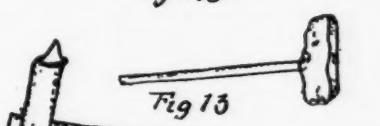
Fig 13

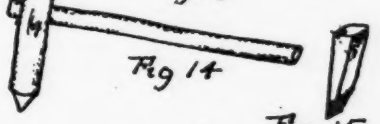
Fig 14

Fig 15

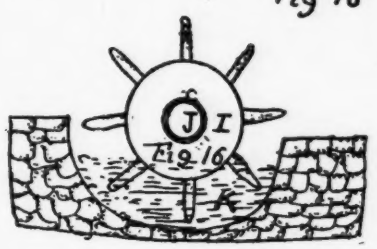

Fig 16

in connection with this is, of what this deposit consists that they could take and work up into paint without any other apparent process than grinding and mixing. Evidently, if they can find lime in that shape, there would be no market for lime in such a country. The description is as follows:

"Lime forms a very flagrant painters' material in all of the islands down near the equator. The writer had the chance to see most of the island of the Moros section and the Sulu group, also a part of Borneo, and was attracted by the numerous white bamboo and other types of wood and stone buildings which were completely whitened. The higher classes of people use white paints for this work, but the majority of the people are too poor and the white lime liquids are utilized for whitening purposes. Every year the stone and wood edifices are thus treated by the municipalities of each town, while the wood and nipa houses of the natives are likewise frequently gone over. I went to some of the lime mines and found that the process of getting the substance was as illustrated in Fig. 11. The natives have only crude implements, and with these the proper sized hole is dug, the natives using baskets to remove the earth, until excavation E is made. The lime strata is thus reached. The sides of the shaft are usually braced with bamboo or stone. A strip of bamboo is adjusted at G, and the windlass device operated by hand crank is used at F with hemp rope for hauling up and lowering the lime bucket. Sometimes the natives penetrate to the lime shaft by digging into the side of the hill at H, Fig. 13. I saw several mines like this. Often these mine shafts cave in for want of proper supports and lives are lost.

"An idea of the crudeness of the situation as regards the working of lime for purposes of coloring buildings a white shade, may be obtained from the several illustrations next in order. Fig. 13 is a stone hammer of the Sulu. It is a flint-like stone, found in certain portions of the island, and when properly worked down is as hard as metal. It will not be chipped or fractured in ordinary usage in lime mine working. The tool in Fig. 14 is a style of Moros pick which the writer noticed in use. The Moros makes these picks for working in lime shafts. The wood handle and the wood headpiece are of hard fibered stuff, very elastic and adapted to the purpose. The ends of the wood headpiece are hollowed, and into these portions of the flint-like stone are adjusted with the points protruding. A chipping tool of metal for working down the lime is shown in Fig. 15.

"When it becomes essential to paint many buildings at one time, as is frequently the case in some of the larger towns, the natives go at it in a whole way and use a revolving paddle wheel like that in Fig. 16, for mixing purposes. A stone basin is made and the liquids put in as at K. The wheel shaft is J and the wheel I. This wheel is turned by hand or other power and the paddles perform the required mixing work."

The Marblehead Lime Co., Marblehead, Wis., has added a stone crusher to its lime works.

The Whitebreast Coal and Lime Co., of Lincoln, Neb., has increased its capital stock from $50,000.00 to $100,000.00.

Forr Bros., dealers in coal and lime at Logansport, Ind., have leased the old Lux lime kilns, and entered the lime manufacturing business.

The Seminole White Lime Co. has been incorporated at Oklahoma City, Okla., with a capital stock of $25.000.00. The incorporators are E. Coady W. W. Webster and M. H. Southworth.

A meeting of the stockholders of the Northwestern Ohio Lime Co., was called for June 28, at the offices of Morgan & Chambers, Spitzer Building, Toledo, Ohio, for the purpose of dissolving the corporation.

The Moore Lime Co., Richmond, Va., are manufacturers of the famous "Anchor" brand of lime. They issue a little booklet that tells all about it, and write us that they think farmers will do better to use more lime and less fertilizers, for there is nothing that improves land so much as lime.

Western New England Lime Co., of Canaan, Ct., has been incorporated with a capital stock of $1,500,000.00. Among the directors are J. Clinton Walker and Ross A. Mackay, of Brooklyn, and Thos. M. Day, Jr., Plainfield, N. J.; John J. Tracey, Jersey City, N. J.; Graham Sumner, A. P. Bartlett, Sidney B. Cooper and others of New York City.

SAND.

The Pocock Glass Co. is to erect a large glass plant at Wooster, Ohio.

The United States Silica Co., Ottawa, Ill., is preparing to increase its output.

It is reported that the Potamac White Sand Co., Green Springs, W. Va., will erect a sand mill.

The Builders Sand and Gravel Co., Davenport, Ia., is building a new barge to move sand with.

Some business men at Alton, Ill., have organized the Piasa Coal and Sand Supply Co., which has been incorporated with a capital stock of $5,000.00. The incorporators are Ed. Levis, Jr., T. W. Collins and H. L. Harford.

Tell 'em you saw it in ROCK PRODUCTS.

Stone.

It is said that the Pleasant River Granite Co., South Addison, Me., has discovered oil on its premises.

The Standish Stone Corporation has been organized at Bridgeport, Conn., with a capital stock of $30,000.00.

The Philadelphia Granite Co., of New York, has been incorporated in Delaware with a capital stock of $150,000.00.

The Haselton Stone and Coal Co., has been incorporated at Youngstown, Ohio, with a capital stock of $10,000.00.

The National Lead, Zink and Fluor Spar Co., Cleveland, Ohio, is preparing to operate marble mines near Cride, Ky.

The Commonwealth Stone Co., Irvington, N. J., has secured a contract for furnishing that city with crushed stone.

A. R. Spear, of the Forrest Lumber Co., is the owner of a marble quarry recently discovered in Alabama on the Tombigbee River.

The Peter-Melcher Stone Co., Louisville, Ky., has recently completed the new United States Custom House and Postoffice at Kansas City, Mo.

The M. T. Benzie Granite Co., Groton, Vt., has been rushed with work the past month, having more orders than it could well take care of.

The Flint Granite Co., of Chester, Mass., has been adding to its force of paving block cutters in order to keep up some work they have on hand.

It is said that Frank Phillips, of East Barre, Vt., has moved to Northfield, Vt., where he will take an interest in the granite work of Cannon & Slack.

The firm of Starr & Burke, granite manufacturers at Montpelier, Vt., has been disbanded and the business will be conducted in the future by Mr. J. K. Starr.

The McCarthy Stone Co., Davenport, Iowa, has secured a paving contract at Fairfield, Iowa, which involves quite a lot of Berea curbing and twenty-six blocks of street paving.

The Northern Granite Co. has been incorporated at Neshkoro, Wis., with a capital stock of $30,000.00. Incorporators are: William J. Carroll, F. B. Phillips and B. W. Stirn.

According to an estimate of the Iowa State Geologist there were 229 stone industries operating in that State during 1901, and they turned out a product valued at $781,756.00.

The Marion Stone Co. has been incorporated at Marion, Ill., with a capital stock of $10,000.00. The incorporators are, Wm. H. Charles, C. W. Barley and Luther E. Frankeboyner.

The Woods County Stone and Manufacturing Co., Carmon, Okla., has been incorporated with a capital stock of $5,000.00. The incorporators are: E. M. Strawm, G. E. Richardson and F. Winslow.

The Newark Stone and Construction Co. has been incorporated at Newark, Okla., with a capital stock of $10,000.00. The incorporators are: M. Haynes, W. D. Lewis, J. C. Armstrong and others.

Reports from Toledo, Ohio, say that Alvin W. Griese, of Chicago, Ill., has bought an interest in the Miami Stone Co., at Toledo, and will assume management of the company's quarries, beginning July 1.

W. D. Crawford, of Berryville, Ark., who has a quarry near St. Louis and North Arkansas R. R., will furnish the dark red, light red and blue gray marble needed for the State building at the World's Fair.

J. P. Newell, of Carthage, Mo., went East the first of June and organized a new company to quarry stone in the Carthage district. The new company is known as the Carthage Building Stone Co., and has a capital stock of $35,000.00.

The Brownville Stone Co. is erecting a crusher plant at Lemont, Ill.

The Lebanon Stone Co. has been incorporated at Lebanon, Pa., with a capital stock of $10,000.00.

H. D. Bacon, Brandon, Vt., bought at auction the marble quarry of Fields & Williams at that place.

Thomas G. Lester, Portmouth, N. H., has installed a new polishing machine in his marble works.

Beaver Valley Sandstone Co., New Castle, Pa., has been incorporated with a capital stock of $10,000.00.

Western Consolidated Granite Co., Chicago, Ill., has decreased its capital stock from $600,000.00 to $400,000.00.

The Wooster Stone and Sand Co. has been incorporated at Wooster, Ohio, with a capital stock of $5,000.00.

Chas. Becker, of Baltimore, Md., has leased ground and will develop dolomite and limestone quarries at Millville, W. Va.

The Monarch Stone Co., of Indiana, has been incorporated with a capital stock of $15,000.00, with offices at Clearcreek, Ind.

The Lake George Stone and Granite Co., Warrensburg, N. Y., is having an active season, and has been adding to its equipment in the way of gang saws.

The New England Brown Stone Quarry Co., Cromwell, Conn., is reported as being very busy just now with several large orders from New York and Philadelphia.

John Fagan's Sons, Derby, Conn., have had such a good business in supplying trap rock that they will add new machinery and increase their output.

Oliver Bros., the famous plow manufacturers of South Bend, Ind., together with other capitalists are preparing to enter the stone quarrying field near Bloomington, Ind. They have bought property between Martinsville and Bloomington.

At a recent annual meeting of the Brandon (Vt.) Italian Marble Co., held at Middlesbury, Vt., the old board of directors was re-elected. The officers of the company are, J. Duncan Upham, president, and R. D. Bacon, secretary-treasurer.

The White Crystal Co., of Goveneur, N. Y., has a $200,000.00 contract for furnishing marble for a residence in Middletown, N. Y. This company was only recently organized, and has at its head Chas. A. Lex, of Clyde, N. Y., and H. D. Brewer, of Syracuse.

It is said that the sandstone trade is prospering nicely with the Minnesota Sandstone Co., at Sandstone, Minn., of which Chas. H. Hale is secretary. This company is working 300 to 400 men, getting out paving block and crushed stone. Also, stone for building purposes.

H. P. Palmer and A. S. Crowder, acting for themselves and Eastern clients, have secured the control of the Green Mountain Marble and Onyx Co., of Spokane, Wash. G. A. Heidenger is president of the company. In a recent newspaper interview Mr. Palmer said: "We have opened some beautiful light green marble on the surface of the quarry, and three men are busy developing the find. We have sunk a pit about ten feet deep at one point, and we are delighted with the showing. The stone is really a serpentine, although, like most of the Stevens County serpentines, it is commonly classed as marble. It is of light green color, free from fractures, and it takes a beautiful polish. One of the attractive features about the property is its nearness to transportation. The quarry is only a mile by a good wagon road from the station at Valley.

"We expect to go ahead systematically in opening the deposit, and we have the funds available to put in a boiler and to install steam drills as soon as desirable.

"While at Valley I visited the properties of the United States Marble Co., half a dozen miles west of the little town. I was surprised at the size of the works. The company has a little town there that rivals Valley in size.

"While I was there a part of the crew was at work taking out a huge block of marble from the newly found canyon green deposits. It seemed to be 40 ft. long by 10 ft. square, and in coloring was magnificient. The visit to the quarry was a revelation to me of the beauty and magnitude of the green stone deposits which we have there at the very doors of Spokane."

Tell 'em you saw it in ROCK PRODUCTS

Artificial Stone

Mr. Fred. Josephy has been appointed manager of the Parkersburg branch of the Marietta (Ohio) Artificial Stone Co.

D. H. Scott, of Paris, Tex., and T. J. Jones, of Dallas, Tex., are interested in a project to manufacture brick from sand and lime at Dallas.

The Colorado Brick and Artificial Stone Co. is erecting a plant at Colorado Springs, Colo., to manufacture a sand brick by the Huennekes system.

M. B. Frost and Edward Hornbrook, of Kansas City, Mo., are interested in a project to manufacture sand brick by a process invented by C. G. Davis, of Benton Harbor, Mich.

The Canadian Coral Marble Co. has been incorporated at Toronto, Canada, with a capital stock of $500,000.00. This company will manufacture a composition known as coral marble for flooring.

The Continental Brick Co., which has been incorporated at Pittsburg, Pa., with a capital stock of $250,000.00, with Samuel O'Neal as president, E. O. Roenigk, secretary-treasurer, is to manufacture stone by the Huennekes system. It is said they will erect a plant on Allegheny River, with a capacity of 40,000 bricks a day. The company has opened offices at 408 Wood Street, and has placed orders for most of the equipment for the plant.

The Pacific Coast Gypsum Co., of Tacoma, Wash., has tackled the problem of converting gypsum into artificial marble, and it is said that soft gypsum may be converted into marble in twenty-four hours. The process is said to be one which was discovered by patient scientific research and is is fully covered by patents. The process is said to be carried on somewhat as follows: "The gypsum is first shaped with the lathe, then thoroughly dried in an oven, after which it is immersed in a solution of sulphate of alumina. Thus treated gypsum is transformed into marble, possessed of great tenacity and tensile strength, capable of very high polish and is rendered acid and stain-proof. The polishing is done after the material has been taken from the bath. Any desired shade or color may be obtained during the process of treatment. All of this, it is said, can be done so cheaply that beautiful marble can be produced from gypsum much cheaper than the marble of nature can be quarried and handled."

M. C. Chattock has a plant at Robertson and DeLord Streets, New Orleans, La., and manufactures an artificial stone known as the "Palmer" block, of which a New Orleans paper has the following description:

"The mold in which the blocks are made is a very simple contrivance. It consists of a foundation provided with three rectangular columns that may be elevated, whose dimensions are those of the cavities in the blocks; to the foundation of the mold are hinged its ends and sides, which let down. When the ends and sides of the mold are in position, it is merely a box; a plate is let down upon the bottom of the mold; then the columns at the bottom of the mold are elevated through openings in the plate. The mold is then in readiness to receive the mixture of sand and Portland cement, which is shoveled into the mold, filling the entire space surrounding the elevated columns. It is tamped with great force.

"After the tamping process, the sides and ends of the mold are let down, the columns are depressed, and the plate on which the materials were poured is lifted out, with the manufactured block resting upon it. The blocks are put out in the air, and in a course of a week they are ready to be used for building. They should not be subjected to too great heat from the sun, and it is necessary to moisten them each day. The great simplicity of the process lies in the fact that sand is absolutely incompressible, and tamping secures as complete results as are obtained from the pressing of clay in making the finer qualities of bricks, and with very much smaller expenditure of labor. The sand and cement are moistened while being mixed."

Our Travelers.

The Way Things Seem to a Newspaper Man When He is Out Among the Trade.

CROSSING ILLINOIS.

SOME BUSY PEOPLE.

The trade conditions among the rock product people throughout the State of Illinois are all that could be desired at the present time; in fact, about the only complaint to be heard—and it is rather a general one—is that there is more business on hand than can be taken care of, and that orders continue to come in a good deal faster than they can be filled. In certain lines of the trade, especially among the brick manufacturers and cement dealers, and some of the machinery people, the entire output is sold ahead for the season. And it seems that one extreme is almost as bad as the other; it is almost as distressing to have to "pass up" a lot of business for lack of facilities, as it is to not have enough to keep the plant running. One of the concerns in this predicament is the Illinois Marble Co., at Edwardsville, manufacturers of plumbers' marble. The plant is one of the best equipped in the West, and though they have recently made a number of improvements, greatly increasing their capacity ,and are employing an unusually large force of men, Manager Lawnin says they still find it difficult to catch up on orders, and the indications are that there will be no cessation to the demand before the end of the year, if it comes then.

B. H. Richards is another Edwardsville man who is finding business rather brisk. Mr. Richards owns a brick yard, located about half a mile outside of town, and is running his plant to its greatest capacity. He says that he could easily use the output of a plant twice as large as his present one, but that the quantity of clay in the locality is scarcely sufficient to justify the enlargement of the plant.

E. F. Koch, monument dealer, Edwardsville, is one of the representative business men of the place, and reports business fairly good. He is carrying a nice stock, and has recently put up some of the best-looking monumental work in Madison County.

WITH THE LITCHFIELD HUSTLERS.

I found the Litchfield Marble and Granite Co., at Litchfield, Ills., also getting out a lot of orders; in fact, working overtime to complete their Decoration Day contracts. A. F. McEwen, superintendent of the company, is a practical stone man of long experience, and there are not many phases of the business with which he is not perfectly familiar. He was a member of the committee from Illinois which had in charge the erection of the monuments on Shiloh battlefield, and much of the success of that undertaking was due to Mr. McEwen's practical knowledge of the conditions involved. He says his work this spring has been greatly retarded by the delay in getting his orders filled at the quarries. He says he placed an order for a $4,000.00 job with one of the New England granite quarries since last October, and that he was spending all his profits for telegrams trying to have it delivered in time for Decoration Day, but without success.

Mr. D. Davis, president of The Litchfield Electric Light and Power Co., also president of J. W. Kirkpatrick & Co., brick and tile manufacturers, and interested in other enterprises, is one of Litchfield's up-to-date, hustling young business men, and you'll hear more of him some of these days. He reports the brick and tile business very brisk, and says that it is taking all their product to supply their old customers, and that much new business has come in, which they have been obliged to refuse, or book for future delivery. Mr. Davis has also about completed arrangements to furnish incandescent lights for the fronts of all the principal stores in town, and promises to give them a regular Fourth-of-July illumination for every night in the year.

I called on the Litchfield Foundry and Machine Co., but was unlucky enough to catch Manager Sweeny busy. However, they seemed to be working a large force of men in the shops, and I understand that their season's business is highly satisfactory, the orders for quarry and mining machinery being particularly large.

A STOP AT DECATUR.

One of the prettiest town in Central Illinois is Decatur, as it is also one of the most prosperous and progressive. There is quite a lot of contruction work being done there at present, the most notable building in course of erection being the new $300,000.00 Milliken University in the West End. I understand also that they are about to introduce in the City Council an ordinance for the resurfacing with asphalt of a mile or two of street. It is intended to put the asphalt surface upon the brick paving, of which the streets are now constructed, the city to pay for the work. Kentucky rock asphalt seems to have the preference, and it is said that this method of asphalt resurfacing has been tried before in Decatur with thoroughly satisfactory results.

V. H. Parker & Son, Decatur, Ill., dealers in cement, lime, plaster, sewer pipes, etc., report a good trade for the season, with indications for continued demand and fair prices.

The Decatur Brick Co. is keeping in the procession, and tell the same story as the other brick people I have met on my rambles. It is almost as profitable to be in the brick business, as to own a gold mine. The Decatur Brick Co. is filling a large contract for the Milliken University, besides several other large contracts, and they have their product sold ahead for several months. J. F. Mattes is president of the company, and S. A. Tuttle, secretary.

Superintendent H. J. Vataw of the Leader Manufacturing Co., Decatur, manufacturers of brick machinery, says the present year has been a banner one in their business, and they have not yet been able to ship out all the orders which they have had on file. The "Leader" machinery seems very popular with the trade, as every one going the rounds of the brick yards in this section of the country will soon notice.

Decatur is also well represented by the monument and marble people, Wm. H. Grindol & Son and Downey & Son being the principal dealers. The last mentioned firm has been organized only a short time, but by the high-class character of the work they are turning out have already built up a good business.

There is considerable interest manifested by the monument people in the Oolitic stone at Bowling Green, Ky. This stone appears to be a "coming" material for bases, etc., and I have had numerous inquiries in regard to it.

AT THE STATE CAPITAL.

There was "something doing" in nearly all lines of the trade at the time I visited Springfield, a condition which has existed for some time in the Capital, and which bids fair to continue for some time to come.

By far, the handsomest building in course of erection in the State at the present time is the new State Armory and Arsenal which the Culver Construction Co. is putting up opposite the State Capitol.

The building covers half a block, being 160x320 ft.; it will be three stories in height, besides the basement. It will be built entirely of Bedford stone, from the quarries of the new American Quarries Co., of Stonington, Ind. S. A. Ballard is the architect, and besides the American Quarries Co., already mentioned, the following are the subcontractors: D. P. Harris, Springfield, Ill., gravel, sand, fire-brick and hauling; Alton Lime and Cement Co., Alton, Ill., crushed stone; Jno. H. King and Dawson Brick and Tile Co., Springfield, Ill., building brick; Vance & Lawson, Springfield, Ill., cement construction; Vulcanite Portland Cement Co., Vulcanite, N. J., portland cement; Meacham & Wright, Chicago, Ill., natural cements; Globe Lumber Co., Kansas City, Mo., lumber; J. J. Powers, Springfield, Ill., plumbing, sewerage and tile drains; John Anderson, Springfield, Ill., teaming and drayage; W. F .Bretz, Springfield, Ill., excavation.

Besides the Arsenal and company rooms the building is to contain a convention hall, capable of seating more than 10,000 persons, and will be connected by a sub-way with the State Capitol across the street, and when completed it will be a structure of which the citizens of Springfield and the State of Illinois may well be proud.

Col. Culver, who is the general contractor, has also been awarded the contract for the new $60,000.00 Carnegie Library, which is soon to be built. He commanded one of the army corps during the Spanish-American war, and his military training is noticeable in the complete mastery which he at all times has over every phase of the work—no detail escaping his observation. He has over a hundred men at work at present, steam traveling derricks, electric light plant, and every facility for the rapid completion of the work. The stone is worked up on an adjoining lot, and temporary tracks run to all sides of the building over which the material is hauled. Col. Culver recently remodeled the Lincoln Monument in Oak Ridge Cemetery, and reinterred the body of "The Great Emancipator" in a solid bed of concerte—a work which attracted national interest at the time.

C. V. Hockox, secretary of the Sangamo Brick Co., Springfield, says they are having a phenomenally large business this season. While he believes the present boom to be somewhat abnormal, still he thinks the improvement in their line likely to continue for some time, and with conditions remaining the same, expects a good business for next year.

"PALMER" ARTIFICIAL STONE.

Vance & Lawson, the cement and concrete contractors of Springfield, have gone into the artificial stone business on a pretty large scale. They are agents for the Palmer hollow concrete-lock machine, and are acting for Mr. H. S. Palmer, the patentee, in sale of territorial rights for the manufacture of artificial stone by this system. General Vance showed me two new dwellings which they have just completed in the prettiest residence portions of Springfield, and it is a safe prediction to make, that not one man in one hundred would suspect that they are not made of the finest quality of limestone. Ground Bedford stone was used in the work, and the finished product has all the appearance of the "real thing." Crushed granite may also be used with equally satisfactory results.

The house built for Mr. Chris. Brown, out on Fourth Street, at a cost of about $4,000.00, is 40 ft. in width, and the rough stone columns of the porch add much to the beauty of its appearance.

The stone, itself, is of cement concrete, and much is claimed for it in hardness and durability, and it is said to stand the weather and climatic changes equal to the natural stone.

The machine for its manufacture is a special one patented by Mr. H. S. Palmer, of Chicago, and is very simple both in construction and operation, one man being able to turn out 100 blocks a day. The system has attracted considerable attention recently, and Vance & Lawson are receiving daily inquiries relative to the exclusive privilege of using it in various States.

WHERE THEY ARE PHOENIX-LIKE.

That the people of Bloomington, Ill., are a hustling, progressive lot of people is proven by the promptness with which they have recovered from the disastrous $2,000,000.00 fire of two years ago, which almost wiped out the principal business district. They have built new and handsome brick and stone structures in place of those destroyed; a fine, new stone courthouse; new hotel; and most of these are strictly fire-proof.

One of the principal industries in the city is the Bloomington Pressed Brick Co. They are making a brick of the shale and debris from an adjoining coal mine, using about two-thirds of the fresh shale to one of the burned shale or debris, and are turning out a good quality of brick. Mr. Oliver Dunlap, president of the company, says the demand for their brick has been large, and they have been running six kilns all season, and will probably enlarge the plant and capacity in the fall.

Mr. Dunlap is also head of the Dunlap Manufacturing Co., makers of the "Perfect Clay Screen," of which he says there are now more than two hundred in use. He has one of the largest size in operation at the brick works, and it certainly appears to do all that he claimed for it, the screened shale being extremely and uniformly fine, and its ingenious and practical construction preventing either the meshes or grinding pan from becoming clogged up at any time.

Mr. C. F. Merriman, 405 S. Center Street, Bloomington, dealer in building tile and paving brick, says he is thinking seriously of getting out of the business. He says this would have been one of his most successful seasons as he has had more orders than ever before, but he can not get the material.

J. K. Moore, the marble and monument man at Bloomington, reports business good, prices fair and inquiries indicating a fair continuance of these condition for the next few months.

IN COMPANY WITH A STORM.

I arrived in Joliet simultaneously with a storm and cloudburst, which all but washed the town off the map, and suspended business for a couple of

Tell 'em you saw it in ROCK PRODUCTS.

days. I visited the limestone quarries in the vicinity, but most of them were closed down and only the pumps were going.

The water was flowing over the top of the Keltie Stone Co.'s quarry, and was doubly disastrous in this instance, as President Keltie says he had to pass up a "rush" order on account of the enforced shutting down of the quarry.

C. M. Braun, marble dealer, 216 N. Bluff Street, Joliet, says that while competition is particularly strong in that territory, he is satisfied with the amount of business he has done this season, and that each year's showing has been better than the last. Present prospects incline him to the belief that this season will be no exception.

The American Quarries Co., Stonington, Ind., have been in operation scarcely a year, but the showing made during the first twelve months has been very satisfactory. They have gotten out a number of large contracts, and the good quality of stone which they are quarrying has attracted the attention of the contractors and constructing people throughout the country. The company has spent a lot of money in equipping the quarry with modern machinery, and are getting right out after the business. Mr. E. E. Worthington, president, and Mr. C. J. Schleif, secretary, have offices in the Fisher Building, Chicago.

Mr. A. L. Kanagy, manager of the Chicago office of the Western Cement Co., thinks the production of hydraulic cement will be quite equal to that of last year, though the scarcity of steel will probably greatly reduce the amount of masonry work done by the railroads. This condition of affairs, Mr. Kanagy thinks, if it becomes acute, will affect the output, the Western Indiana R. R. having already cancelled all contracts for masonry construction for this reason. J. F. H.

AT BOWLING GREEN, KY.

It is a safe prediction to make that in the matter of rock products Kentucky will soon add to her long list of other world-famed characteristics another important feature. For more than a century it has been known that the building stone in the vicinity of Bowling Green, Ky., was of a superior quality. It is easy to quarry and work, and while many of the earliest settlers utilized it in their rude huts and chimneys, many of which remain to-day, having stood for about one hundred years, it was not until within the last fifty years that the stone was used to any great extent outside of this district. The city of Bowling Green has many buildings which were built from this material more than seventy-five years ago that are as intact in point of appearance and durability as when they were first erected. The demand, however, for the product of these quarries is not limited to Bowling Green now by any means. It is shipped both rough and finished to various parts of the United States where it is used by the Government, State and corporations for large, substantial buildings. Many of the finest City Halls, Court Houses, Custom Houses, State Houses and passenger depot buildings North and South have been built from the stone taken from these quarries. The quality of this stone is not unlike the celebrated Portland stone of Great Britain, and as it has so successfully and satisfactorily withstood the tests of both government and building experts it has become a favorite stone for building. While it is an Oolitic stone it differs materially from the Indiana stone of the same name; it belongs to another group of limestone, the constituent globules being rather large and distinct, while in the Indiana stone they appear to be very minute. This is a distinction recognized and also emphasized in a report of Government experts, after a comparison and analysis of the two stones. This fact led to its extensive use by the Government in many of its largest and most substantial buildings in the South and West.

PUSHERS OF BOWLING GREEN STONE.

The most prominent industry in this stone is the Bedford-Bowling Green Stone Co., which owns and controls about 500 acres of land. The officers and owners of this company are: Levy Bloom, president, Louisville, Ky., and David Y. Johnson, Bedford, Ind., who is general manager of the concern, and divides his time between the two points, giving a major portion just now to this place. He is the right man in the right place, too—a man of great executive capacity, strong individuality and clear insight.

Aside from this enterprise he is a heavy stockholder in similar industries in and near Bedford, Ind., and is mayor of that hustling little city. This is a political honor which was thrust upon him. Since his election to that office, a part of his district has given instruction for him for Congress, which, if accepted, is equivalent to an election, but this proposed honor he has promptly declined, and this action on his part is another evidence of his good business sense and judgment.

These quarries, up to February last, had been idle for two years when this company took active hold. Since then the work has been pushed, and there is now a full force of about 100 men working night and day, and orders on the books which put them 60 days behind. They have waterworks and their own electric light plant. A large commissary has been built which is under the superintendency of Mr .Paul McGoodwin, as is the plant in general.

The New Albany Manufacturing Co. is installing several new and modern appliances for handling and working stone, which will greatly increase the output.

The quarries are about six miles south of Bowling Green, and about three miles from Memphis Junction. The company owns its own tracks from the junction to the quarries and connects with the L. & N. R. R., which gives it ample facilities for shipments to any point in this country.

THE M'CLELLAN STONE CO.

Another industry is that of the McLellan Stone Co., which is located near Rockfield. The officers of this company are: Mr. C. G. Smallhouse, president, and his son, Mr. E. Smallhouse, secretary-treasurer. The plant is not now in active operation owing to a temporary shut down for repairs and additional machinery. They are only at work on orders that need prompt attention. This company was organized in 1888. The quarries, however, were opened in 1884. The product is used for flagging, curbing, buildings, fence foundations and general street purposes. It is a hard limestone and polishes well. A well-known chemist and geologist, in writing about this stone, said: "It is a compact fine-grained limestone of a light gray color, remarkably pure and would calcine into white lime.

I did not meet the senior member of the firm, but in the person of Mr. E. Smallhouse, the secretary, who is also interested in the marble and statuary business on a large scale, I found a genial fellow well up in that industry as well as in stone and things in general. He talked quite enthusiastically about the rock industry in that section. He also had some good words for ROCK PRODUCTS, which he said was always a welcome visitor to his desk.

THE SWEENEY QUARRY CO.

The T. J. Sweeney Quarry Co. has a quarry about two miles south of the city, and is working for business. Mr. T. J. Sweeney, who is the chief stockholder and president of the company, was out of the city, but I made it a point to investigate the industry and its products to some extent. This stone is very much like the other stone found around there, and is used chiefly for fence foundations and general building purposes. The Methodist Church and the beautiful fence of the wealthy banker, Mr. W. J. Potter, are fine examples of its durability for such purposes. In a conversation with Mr. Potter, who is interested in many things that help to develop that growing little city, one could not fail to appreciate his enthusiasm over the prospects for that section, and especially the rock industry.

WITH THE ASPHALT PEOPLE.

The asphalt resources of Kentucky is something of which the early settlers knew nothing, and those of recent years who saw this material were ignorant as to its value. All along Green River, on the Warren, Butler and Edmonson sides, extending far into Grayson and Hardin Counties, it abounds in inexhaustable quantities as fine as any other asphalt in the world. A number of large companies have leased up a considerable portion of this entire area, and some are actively engaged in getting out the material and preparing it for its various uses. The most prominent and successful industry in developing this business is the Green River Asphalt Co., a pushing organization with considerable capital. Their contracts for future deliveries, together with present orders, keep their capacity taxed to its fullest extent. They are now putting in some extensive improvements in the way of hoisting and other machinery, which, when completed, will increase their present capacity about 35,000 tons. These are being installed by the Flory Manufacturing Co., of Bangor, Pa., who make a specialty of that class of machinery.

The hoister will take the rock from the barges in the river and carry it two hundred and fifty feet to the crusher, and, when crushed, into the store or from the mills into the cars. The erection of this part of the plant is under the supervision of Mr. J. Marshall Young, direct from the factory at Bangor. He is another one of those men in the right place. He had a good word for ROCK PRODUCTS, and ventured many predictions concerning the possibilities of this industry and the Green River Asphalt Co.

The quarries of the company are located about fourteen miles (measured with coon skins, tails thrown in—good old country miles at that) from Bowling Green, on Green River at Young's Ferry.

I saw the members of the company, who were on their return from a trip to the quarries, and they were a tired-looking set of fellows. They were: Mr. G. G. Sutherland, president; Mr. R. W. Speirs, vice president; Mr. R. E. Aemin, treasurer. They were accompanied by Mr. F. M. Stinson, who is general manager and superintendent of the company, with headquarters at Bowling Green. Though tired and in a condition where one feels less communicative than at other times, they did not hesitate to express themselves as delighted with their present business and future prospects. They are doing an extensive business in street and paving work in many large cities. The opening of another quarry about a mile from the present one will add materially to their output and enable them to meet the heavy demands of their trade. They have been in operation only three years and their growth has been phenomenal.

T. E. B.

Aluminum.

The production of aluminum in the United States during 1901 amounted to 7,150,000 pounds, an increase of 1,150,000 pounds over the year 1900. The Pittsburg Reduction Co., operating the Hall patents, remains still the sole producers of aluminum in this country. The price of aluminum per pound remained practically stationary throughout the year, although the demand for the metal increased. The total imports of all forms of aluminum in 1901 were valued at $109,748.00, as compared with $50,444.00 in 1900.

A Famous Sandstone.

The *Stone Trades Journal*, of England, says the history of a celebrated stone will be brought into prominence in connection with the approaching Coronation of King Edward VII. Under the Coronation chair there rests the famous Jacob's stone, or stone of destiny, on which Jacob's head is said to have rested when he dreamed of seeing the ladder reach to heaven. According to Sir Walter Scott, Fergus, son of Eric, was driven out of Ireland and landed in 503 B. C. on the coast of Argyllshire, in Scotland, bringing the stone with him. Later on it was brought by King Kenneth of Scotland to Scone Castle, and the Scottish kings were crowned on it from that time till Edward I. destroyed the Royal residence of Scone, and took the stone to London. It was believed that the stone gave forth musical sounds when the rightful ruler seated himself upon it, but remained mute when a usurper was crowned. The conveyance of the stone to England was regarded as a national humiliation by the Scottish people, who believed that England committed a breach of faith, because in the treaty concluded between the countries in 1328, one of the conditions was the return of the ancient treasure. Edward III. gave orders that it should be sent back, but for some unknown reason he was not obeyed, and from his time until now it has always been placed under the Coronation chair of English Sovereigns. The stone is not of metoric origin, as has been asserted, but a block or red sandstone containing an unusual proportion of iron.

It is said that the Delaware and Marion Electric Railway Co. has purchased the Beecher stone quarry near Delaware, Ohio, and will use the output in road building.

The Sky Blue Marble and Onyx Co., Humboldt, Neb., has been incorporated with a capital stock of $150,000.00, by Eugene A. Tucker, Paul Kreter, Rudolph Vertiska, Frank R. Butterfield, Eugene W. Tucker, G. W. North, Ed Bignell.

The St. Louis Granite Curbstone Co. has been incorporated at St. Louis, Mo., with a capital stock of $3,000.00. Incorporators are: B. R. Johnson, Henry N. Chapman. J. E. Bedell, Price Martin, John Mare, A. F. Bischoff, Robert Schultz, J. P. Trader and E. H. Brewer.

Tell 'em you saw it in ROCK PRODUCTS.

Quarries.

T. H. Zanderson, at San Antonio, Tex., will develop serpentine quarries.

Peter J. Hennessy has bought the Hennessy & Cox quarries at St. Cloud, Minn.

C. F. Smith has opened up a sandstone quarry on his farm near Appleton, Wis.

It is reported that J. S. Rapp, of Portsmouth, Ohio, will open up a new stone quarry and install a stone-sawing plant.

Chas. Becker, of Baltimore, Md., has leased limestone and dolomite properties at Millville, W. Va., and will open quarries.

The Philadelphia Granolite Co. has been organized with a capital stock of $150,000.00 at New York City to quarry marble.

William Spangler, of Red Lime, Pa., has opened High Rock Quarries and expects to work on a larger scale than previously.

Kunneke & Holmes, who now own the old township quarry at Columbus, Ohio, have pumped out the quarry and are operating it.

R. V. Young has a stone quarry near Trenton, Mo., which produces what is said to be a fine specimen of white limestone, similar in character to the Bedford stone.

Dyer & Kilkaney, Utica, N. Y., have leased the limestone quarry, on Sugar River, owned by Mrs. Nora Tracy, and will operate it to get out stone for canal purposes.

S. B. Seybold and Jos. S. Murray, of New Kensington, Pa., have purchased some stone quarries at Saxonburg, Pa., which they will operate on a large scale.

E. S. Meade and W. F. Funk, of La Cross, Wis., have bought the Louis Miller stone quarry, East of that city, and will install about $10,000.00 worth of machinery for handling and crushing stone.

Stewart & Donahoe, Wilmington, Del., who operate a large quarry along the Brandywine, are furnishing stone to Ryan & Kelly in connection with some railway work that they have on hand.

At a recent meeting of the directors of the Hughes Marble Co., at Clyde, Ohio, a dividend was declared and W. E. Hughes resigned his position as manager, and Mr. Fred. Curtis was appointed to fill the position.

The Great Western Marble Co., Spokane, Wash., has purchased a stone milling plant to be used in connection with its quarries. The plant is furnished by the Sullivan Machinery Co., Chicago, Ill., and is said to be the largest outfit sold any quarry before.

The United States Marble Co., Spokane, Wash., which was mentioned a couple of months ago, is working up considerable interest on the subject of the green stone produced by them at Spokane, Wash., and is putting in machinery and otherwise getting in shape to do an extensive business.

The Milford Granite Co., 525 Main Street, East Orange, N. J., has changed its name to the Milford Pink Granite Construction Co., and another company of that name has been organized with a capital stock of $1,000,000.00. The incorporators are: Andrew N. Dickinson, Frederick A. Schluns, William H. Sayre, C. V. Dolliers, Marcus J. Conlan and William R. Buckneiester.

The Connecticut Trap Rock Crushing Co. has been organized with offices at New Haven, Conn., with a capital stock of $175,000.00. This company, it is said, takes over the business of D. B. Pierce & Co., quarry at Middlefield; J. S. Lane & Son, of Meriden; The Rocky Hill Stone Co., of Rocky Hill, and the Cook Stone and Ice Co., of Plainville. D. B. Pierce is president; Arthur S. Lane, treasurer; Irving S. Tinker, secretary, and Jas. H. Cook, general manager. This step it seems was taken as a solution of differences arising out of competition for trade among local firms.

The Production of Abrasive Materials.

Abrasive materials are, as a whole, but little understood, although they are in one sense among the most important of the mineral products, says Dr. Joseph Hyde Pratt in "Mineral Resources of the United States, 1901," now in press, United States Geological Survey. The principal abrasives fall into three general groups: Those which occur as rock formations, and are cut and manufactured directly into the form desired, while retaining their original rock structure and appearance, as grindstones, whetstones, etc.; those which occur as a constituent of either a rock or a vein, and have to be mechanically separated and cleaned as corundum, emery and garnet; artificial abrasives, as carborundum, crushed steel and artificial corundum.

The use of abrasives is growing with the increase of our manufacturing industries. The total value of natural abrasives produced in the United States in 1901 was $1,194,572.00, as compared with $1,208,073.00 for 1900.

Oilstones and Whetstones.

In the United States, rocks suitable for making whetstones are found in nearly all the States east of the Mississippi, and in a number of those to the west of that river; but the supply is obtained from Arkansas, Indiana, Ohio, New York, Vermont and New Hampshire.

The Arkansas whetstone quarries are in Garland and Saline Counties—the principal ones being on Quarry or Whetstone Mountain, near Hot Springs, Garland County. The sandstones of Orange County, Indiana, furnish a whetstone known as the Hindoostan or Orange stone, which is quarried in Frenchlick and Northwest Townships. In Kentucky, the Caron Stone Co. is quarrying to a limited extent a waterhone from Hardin County. In Ohio, at Berea, Euclid and Chagrin Falls, in Cuyahoga County, and at Grafton in Lorain County, whetstones and oilstones are produced. In Cortlandt County, near Labrador Lake, in New York, the Labrador stone is quarried for whetstones. In Haverhill Township, Grafton County, New Hampshire, and near Lamoille, Orleans County, Vermont, are the quarries for the celebrated Indian Pond, White Mountain and Lamoille scythestones. The production of oilstones, whetstones, etc., in 1901 amounted to $158,300.00; the imports were valued at $64,655.00, and the exports were in excess of the imports.

Grindstones.

The production of grindstones in the United States is almost entirely from Ohio and Michigan. The principal grindstone district in Ohio is included in Lorain, Cuyahoga and Summit Counties, with Cleveland as a center, the largest grindstone quarries and manufacturing plants being within twenty-five miles of Cleveland. The quarries in Southern Ohio are along the Ohio River, west of Marietta, and inland northwest of that city. A few quarries are in West Virginia across the river from Marietta. The Michigan quarries are on the shores of Lake Huron, about ninety miles north of Port Huron, near Grindstone City. In South Dakota are located the quarries of the Edgemont Stone Co., near Edgemont on the line of the Burlington and Missouri River Railway.

Pulpstones.

Since paper began to be manufactured from wheat pulp, there has been a demand for a stone suited to the grinding of wheat to a pulp. The main supply of pulpstones has been imported from Newcastle-upon-Tyne, England. Various attempts to find a stone in this country suitable to this purpose have been made; and the stones from the new quarries of the Tippecanoe Pulp and Grindstone Co., at Empire, Ohio, has proved to be well adapted to the manufacture of pulps. In 1901 there was a very large increase in the production of pulpstones over that of any previous year, the total production amounting to 860 tons, valued at $18,800.00, as compared with 553 tons, valued at $12,495.00, produced in 1900, and with 288 tons, valued at $8,712.00 in 1899.

The total value of the production of all kinds of grindstones in 1901 was $580,703.00, a decrease of $129,323.00 from the production of 1900, which was $710,026.00.

Grindstones continued to be imported into the United States, and they come from Newcastle-upon-Tyne, in England, from Edinborough, Scotland, and from Bavaria. The imports in 1901 amounted to $88,871.00, as compared with $92,581.00 in 1900.

The total export of grindstones from this country is now greater than the import.

Tell 'em you saw it in ROCK PRODUCTS.

Buhrstones and Millstones.

Millstones are found in various localities in the United States. The New York millstone quarries are located in a belt of sandstone and conglomerate on the Shawangunk Mountains, extending across the towns of Rochester, Marbletown, Wararsing, Gardener, New Platz, in Ulster County, and the product is known as "Esopus" stone. In Pennsylvania the quarries are located in Lancaster County, and the millstones are known as "Turkey Hill" and "Cocalico," the former being found on Turkey Hill, near Bowmansville, and the other near Durlach and Lincoln. In Virginia, quarries have been opened on Brush Mountain, in the vicinity of Price's Fork, Montgomery County, and the stone is known as the "Brush Mountain" stone. The places just mentioned were the only ones at which millstones were quarried during 1901, and there was an increasing production from each of them. Millstones were formerly obtained from Moore County, North Carolina, and from the Berea Grit, at Peninsula, Ohio.

A good many buhrstones are still imported from France, Belgium and Germany, and they are considered more satisfactory than the American stones. The production of millstones in 1901 amounted to $57,179.00, as compared with $32,858.00 in 1900, and with $28,115.00 in 1899. The value of the imports of millstones and buhrstones in 1901 was $42,187.00, as compared with $28,904.00 in 1900.

Where Pumice Comes From.

During the summer of 1897 several extensive deposits of pumice were discovered in Nebraska, the most extensive being in Sioux, Dawes, Scott's Bluff, Banner and Cheyenne Counties. Another deposit was discovered in South Dakota, about three miles east of Pine Ridge Agency. The volcanic ash of which these deposits were composed was probably brought by the winds from volcanoes in Colorado and New Mexico, and deposited in the lakes and other water courses which at that time covered this region. A deposit of lump pumice stone has been found in Millard County, Utah, and is the only known deposit of lump pumice stone in the United States. A large deposit of pumice is reported as occurring in Sonoma County, California. On account of the distance of these deposits from the railroad and from the large markets, they have not been able to compete with the pumice imported from Lipari, Sicily, which is shipped as ballast and sells in New York, after being ground and bolted, at from 2 to 2½c per pound. No record of the pumice imported into the United States is kept, but it is estimated as being between $45,000.00 and $65,000.00 a year.

Infusorial Earth or Tripoli.

Large deposits of infusorial earth or tripoli have been found in Maine, New Hampshire, Massachusetts, Connecticut, New Jersey, Maryland, Virginia, Georgia, Alabama, Arkansas, Nevada and California, and a porous siliceous rock in Carthage, Newton County, Missouri, is included, as it is used for the same purpose as the infusorial earth. Perhaps the largest and most noted of infusorial earth deposits are those at Niederohe and Oberohe, in North Germany. The infusorial earths are included with the abrasives because they are used in manufacturing polishing powders and scouring soaps. Infusorial earth has been found also to make an excellent absorbent for the manufacture of dynamite and nitroglycerin; its non-conductivity of heat gives it value for packing for boilers, steam pipes and safes, and it is also being used considerably in the manufacture of fireproof building materials. The production of 1901 amounted to 4,020 short tons, valued at $52,950.00, as compared with 3,615 tons, valued at $24,207.00 in 1900. This increase in value is partly due to the large production of the American Tripoli Co., of Seneca, Missouri.

Crystalline Quartz.

Cystalline quartz is used principally as a wood finisher, and the entire production of this material for this purpose is accredited to Connecticut. Crystalline quartz is used also as an abrasive in the of sandpaper. The production of crystalline quartz is crushed and sized and used in the manufacture of sandpaper. The production of crystalline quartz in 1901 was 14,050 short tons, valued at $41,500.00, as compared with 14,461 tons, valued at $43,705.00 in 1900. These values are for the crude quartz; after it has been prepared for market its value is from three to four times as great.

Where Garnet is Obtained.

At the present time garnet is obtained in four States—New York, Connecticut, Pennsylvania and North Carolina. In New York the garnet is obtained from near North Creek and Minerva, in

Warren County, in the valley of the Upper Hudson River, and in Essex County. In Connecticut, garnet is found near Roxbury, Litchfield County. The Pennsylvania localities are at Chester Heigths, in Chester County, and also in Delaware County. Garnet deposits have been worked at a number of localities in North Carolina with considerable success. These deposits are all in Jackson County; one, the Sugar Loaf mine, is near the summit of Sugar Loaf Mountain, a mile and a half from Hall; another, the Savannah mine, is on Cowee Mountain, near the head of Betty Creek; a third, the Presley mine, is near Speedwell, in the upper Tuckasegee Valley. There is a large deposit of massive garnet in Mitchell County, about five miles from Spruce Pine. There are bands of corundum and garnet-bearing quartzschist in the southern part of Clay County and the northern part of Rabun County, Georgia, on the slopes of Scally Mountain, which a Philadelphia company is now working for corundum with garnet as a bi-product. A good quality of rich red garnet in crystals an inch or more in diameter is found in Alaska, near Fort Wrangell, at the mouth of the Stikine River.

Most of the garnet mined is used in the manufacture of sandpaper or "garnet paper," which is extensively employed for abrasive purposes, especially in the manufacture of boots and shoes. Practically all the garnet produced in North Carolina is manufactured into wheels, which are sold as emery wheels. The production for 1901, as reported to the Survey, is 4,444 short tons, valued at $158,100.00, as compared with 3,185 tons valued at $123,475.00 in 1900. The average value per ton of the garnet produced in 1901 was $35.57, as compared with $38.76, the value per ton in 1900.

Corundum and Emery.

Under corundum are included the three varieties —sapphires, corundum and emery—the last two being the varieties used in the arts for abrasive purposes. Next to the diamond, corundum is the hardest mineral known, and the blue sapphire is the hardest variety of corundum known. Corundum occurs in a narrow belt extending from Tallapoosa County, in Eastern Central Alabama, to Trenton, New Jersey, and also along the same line in New York, Connecticut, Massachusetts, New Hampshire and Maine. The Corundum Hill mine, which was the only producer in 1901 of corundum from deposits occuring in this belt, is located about eight miles southeast of Franklin, Macon County, North Carolina. Corundum is known to occur in many other localities in the Eastern States. Within the last few years a deposit of corundum of a commercial quantity for abrasive purposes has been found in the South Central part of Gallatin County, Montana, on the headwaters of the Elk Creek, and it is expected that this Montana corundum will be placed on the market before the close of 1902. A discovery of corundum has recently been made in Plumas County, California, about one and one-half miles northwest of Meadow Valley post-office. In Fremont County, Colorado, also about seven miles from Canyon, the nearest railroad station, another interesting occurrence of corundum has recently been found. In addition to the deposits of corundum mined for abrasive purposes in the United States, it is now also mined in the province of Ontario, Canada; in the Salem district of the province of Upper Burmah, India; on the Island of Naxos, in the Grecian Archipelago, and in the vicinity of Smyrna and Kulah, in Turkey.

Corundum and emery are put upon the market in the three forms—as grains of powder, as emery paper and as wheels and blocks of various shapes and sizes. The total amount of emery and corundum produced in the United States in 1901 was 4.305 short tons, valued at $146,040.00, as compared with 4,305 short tons, valued at $102,715.00 in 1900.

The imports of emery into the United States in 1901 amounted to $294,999.00, as compared with $239,506 in 1900.

Artificial Abrasives.

The experiments in producing artificial abrasives that have been in progress during the last fifteen years have met with success, and there are now three artificial abrasives on the market—carborundum, crushed steel and artificial corundum. Carborundum is produced by the Carborundum Co., at Niagara Falls, and in 1901 the total production of carborundum was 3,838,175 pounds, valued at from 8 to 10c per pound, as compared with 2,401,000 pounds in 1900. Carborundum is now used to a certain extent as a general abrasive. Crushed steel is used in the stone-cutting trade, particularly by the marble and granite cutters. The production of crushed steel by the Pittsburg Crushed Steel Co. in 1901, amounted to 690,000 pounds, being 10,000 pounds less than the production of 1900. A new industry has been started in the manufacture of artificial corundum. The Norton Emery Wheel Co. has erected a plant at Niagara Falls for the manufacture of artificial corundum, and already two or three carloads of the material have been manufactured and made into wheels, etc., which are reported as giving good satisfaction.

Graphite Production in 1901.

The production of graphite in 1901 is discussed by Dr. Joseph Struthers in "Mineral Resources of the United States, 1901," now in press, United States Geological Survey. The production of crystalline graphite was 3,967,612 pounds, valued at $135,914.00, as compared with the reported production of 5,507,855 pounds, valued at $178,761.00, in 1900. The greater part of this product was derived from the mines at Ticonderoga, N. Y., although the mines in Chester County, Pa., produced a considerable quantity. The mine in Clay County, Ala., which was in operation in 1900, produced approximately 150 tons of graphite during 1901.

The production of amorphous graphite in 1901 was 809 short tons, valued at $31,800.00. Under this head is included the so-called graphitic anthracite of Rhode Island, and also the so-called Baraga graphite of Michigan. In addition to this production there has been considerable activity in developing graphite mines in Georgia, Montana, Dakota and New Jersey; and, in aggregate, some 2,500 tons of material have been mined and are awaiting the proper concentrating processes.

The amount of graphite imported into the United States in 1901 was 14,320 long tons, valued at $895,375.00. It appears that the domestic production of crystalline graphite amounted to but little more than one-tenth of the consumption for that year. The greater part of the imports of higher grade graphite is derived from the mines of Ceylon.

The production of Canadian graphite in 1901 amounted to 2,190 short tons, valued at $44,380.00, the output being mainly derived from the Brougham mines in Renfrew County, Ontario.

The manufacture of artificial graphite has increased greatly, the production during 1901 amounting to 2,500,000 pounds, valued at $119,000.00, as compared with 860,750 pounds, valued at $68,860.00 in 1900, and with 162,382 pounds, valued at $10,149.00, in 1897, the first year of commercial production. The sole producer is the Internatioal Acheson Graphite Co., at Niagara Falls, N. Y. More than one-half of the output for 1901 was in the form of graphitized electrodes for use in the manufacture of alkali and bleach by electrolytic processes, the remainder being consumed in the manufacture of paints, lubricants, pencils, motor brushes, crucibles and dry batteries.

Titanium and Its Uses.

The occurrence and production of titanium ores is discussed by Mr. W. O. Snelling in "Mineral Resources of the United States, 1901," now in press, United States Geological Survey, David T. Day, Chief of Division, with special reference to the recent discovery of large deposits of rutile in Virginia, which has brought to the attention of the ceramic and the steel industries the commercial possibilities of this ore of titanium. Hitherto, owing to the small supply that has been available, and to the impure state in which it is generally found, rutile has been but little used in this country, the few hundred pounds produced annually going largely to collectors of minerals and to the manufacturers of artificial teeth, who use the pure oxide as a pigment in reproducing in porcelain the natural yellow color of the tooth, notwithstanding the recognized value of titanium as a component of a special steel, and notwithstanding the use of the oxide for many years past by foreign manufacturers of pottery. Minerals containing titanium are found widely distributed and in such large quantities as to make it a relatively abundant element, though nearly all the text-books on chemistry speak of titanium as one of the rare metals. In some places, particularly in the Adirondacks, titaniferous iron ores are found in enormous quantities, making one of the principal components of the great rock masses which form mountains and constitute a geological formation.

Ilmenite is the most abundant of all the titanium minerals, and is found in beds of great extent at Kragero, in Norway, Bay St. Paul, in Canada, and in Rhode Island, Connecticut, New York, North Carolina, Pennsylvania and Vermont, in the United States. Rutile is generally found wherever large deposits of ilmenite occur, and besides the localities mentioned for ilmenite, it is found in notable quantities at Graves Mountain, Georgia; Magnet Cove, Arkansas, and on both sides of the Tye River, near Roseland post-office, in Nelson County, Virginia, where the deposit is very large.

Under favorable conditions titanium oxide imparts to porcelain a fine yellow color. It is capable of being used with other substances to produce secondary colors, and it will withstand, without difficulty, the heat of the kiln, although at very high temperatures it increases the fusibility of the porcelain somewhat, acting as a flux. Mr. Snelling does not seem to think, however, that any extensive market for this Virginia rutile will develop in the pottery industry. With regard to steel, the experimental work, so far as tried, seems to show that the addition of titanium gives the steel a high limit of elasticity and a greater elongation as well as an increased ductility over simple carbon steel; and as titanium steel takes a good temper and is very hard, a number of possible uses suggest themselves for it, dependent only upon the economical preparation of some titanium alloy, the commercial production of which seems not to be an easy matter. As ilmenite is at the present time used exclusively as a source of titanium for steel, the output for the market for Virginia rutile seems a poor one in this industry also; and its use, amounting to a few hundred pounds annually, in the artificial-tooth industry is supplied by the rutile deposits of Chester County, Pennsylvania. Even under the most favorable conditions, says Mr. Snelling, the annual domestic market for rutile is not likely to exceed in value $2,000.00. In 1900 the production of rutile in the United States amounted to 300 pounds, valued at $1,300.00, and the production of Norway amounted to 57,485 pounds, valued at $5,643.00. The production of the Virginia rutile deposits, beginning in 1900, have amounted, up to date, to about 40,000 pounds, making an estimated output of rutile in the United States for the year 1901 of about 44,000 pounds.

The Arsenic Industry.

Among the new industries that have been recently developed in the United States is the manufacture of arsenious oxide, says Dr. Joseph Struthers in "Mineral Resources of the United States, 1901," now in press, United States Geological Survey, David T. Day, Chief of Division. This manufacture was taken up during 1901 by the Puget-Sound Reduction Co., at Seattle, Washington, and an output of 300 short tons was placed on the market. Previous to 1901 the world's supply of arsenic and arsenious compounds was derived chiefly from the mines in Cornwell and Devon, England, and at Freiberg, Germany. In 1899, the world's production of the forms of arsenic amounted to 14,936,165 pounds, valued at $581,911.00. The imports of arsenic into the United States during the last five years have averaged about $340,000.00 per annum, which seems to show that the exploitation and manufacture of arsenic and its compounds in this country could be profitably developed.

Bauxite Production.

Georgia produced the bulk of the domestic bauxite in 1901, the remainder being supplied by Alabama and Arkansas. The total production was 18,905 long tons, valued at $79,914.00, as compared with 23,184 tons, valued at $89,676.00 in 1900. Bauxite is used mainly for the manufacture of aluminum, although a considerable quantity is used for the manufacture of aluminum sulphate and crystallized alum. The Pittsburg Reduction Co. is installing a large plant at Bauxite, Saline County, Arkansas, which promises to increase largely the output from Arkansas in 1903. The import of bauxite into the United States during 1901 amounted to $67,117.00, the exports were valued at $300,000.00, and the consumption seems to have been 39,658 long tons, valued at $151,262.00. The imports in 1901 were 18,313 long tons as compared with 8,656 tons for the preceding year, an increase due mainly to the low ocean freight rates from foreign ports. This low freight rate caused bauxite to be delivered, duty included, from the south of France at New York, Philadelphia and Baltimore, at a lower rate per ton than it cost to ship it from Georgia or Alabama to Philadelphia. The principal commercial salts of aluminum are aluminum sulphate and crystalized alum, for the manufacture of which bauxite and Greenland cryolite are used. The Pennsylvania Salt Co. possesses the exclusive privilege of importing cryolite into North and South America. In 1901 the production of aluminum sulphate was 74,721 short tons, and that of crystallized alum was 7,755 tons.

Tell 'em you saw it in ROCK PRODUCTS.

A Digest of the Industries from the Twelfth Census Report--Continued from Last Month.

MONTANA.

BRICK AND TILE.—Eleven establishments; capital, $64,125.00; wage-earners, 48; wages paid, $19,697.00; cost of material used, $12,625.00; total value of product, $46,150.00.

LIME AND CEMENT.—Seven establishments; capital, $284,500.00; wage-earners, 51; wages paid, $31,590.00; cost of material used, $40,420.00; total value of product, $91,764.00.

MARBLE AND STONE WORK.—Four establishments; capital, $23,400.00; wage-earners, 112; wages paid, $39,382.00; cost of material used, $1,995.00; total value of product, $63,893.00.

MASONRY, BRICK AND STONE.—Seventeen establishments; capital, $18,274.00; wage-earners, 84; wages paid, $47,415.00; cost of material used, $44,605.00; total value of product, $121,876.00.

MONUMENTS AND TOMBSTONES.—Eleven establishments; capital, $47,352.00; wage-earners, 33; wages paid, $14,901.00; cost of material used, $27,257.00; total value of product, $85,761.00.

PLASTERING AND STUCCO WORK.—Nine establishments; capital, $6,350.00; wage-earners, 11; wages paid, $6,058.00; cost of material used, $6,690.00; total value of product, $23,700.00.

NEBRASKA.

BRICK AND TILE.—One hundred and six establishments; capital, $1,275,533.00; wage-earners, 855; wages paid, $327,544.00; cost of material used, $203,247.00; total value of product, $839,815.00.

MARBLE AND STONE WORK.—Eight establishments; capital, $54,050.00; wage-earners, 57; wages paid, $34,000.00; cost of material used, $30,165.00; total value of product, $100,545.00.

MASONRY, BRICK AND STONE.—Seventy-eight establishments; capital, $166,915.00; wage-earners, 618; wages paid, $314,097.00; cost of material used, $659,772.00; total value of product, $1,286,885.00.

MONUMENTS AND TOMBSTONES.—Forty-seven establishments; capital, $199,465.00; wage-earners, 120; wages paid, $61,908.00; cost of material used, $189,128.00; total value of product, $387,060.00.

PAVING AND PAVING MATERIALS.—Sixteen establishments; capital, $300,838.00; wage-earners, 369; wages paid, $149,388.00; cost of material used, $130,686.00; total value of product, $353,574.00.

PLASTERING AND STUCCO WORK.—Thirty-four establishments; capital, $63,492.00; wage-earners, 79; wages paid, $37,322.00; cost of material used, $59,459.00; total value of product, $138,437.00.

ROOFING AND ROOFING MATERIALS.—Thirteen establishments; capital, $51,586.00; wage-earners, 54; wages paid, $20,448.00; cost of material used, $86,335.00; total value of product, $165,795.00.

NEW HAMPSHIRE.

BRICK AND TILE.—Fifty-five establishments; capital, $655,731.00; wage-earners, 591; wages paid, $227,615.00; cost of material used, $146,675.00; total value of product, $537,752.00.

MARBLE AND STONE WORK.—Thirty-six establishments; capital, $491,836.00; wage-earners, 511; wages paid, $253,650.00; cost of material used, $142,037.00; total value of product, $564,654.00.

MASONRY, BRICK AND STONE.—Ninty-six establishments; capital, $199,230.00; wage-earners, 563; wages paid, $282,946.00; cost of material used, $227,837.00; total value of product, $707,209.00.

MONUMENTS AND TOMBSTONES.—Ninty establishments; capital, $421,749.00; wage-earners, 547; wages paid, $376,272.00; cost of material used, $249,337.00; total value of product, $858,391.00.

PAVING AND PAVING MATERIALS.—Thirteen establishments; capital, $65,421.00; wage-earners, 125; wages paid, $59,277.00; cost of material used, $33,764.00; total value of product, $143,834.00.

PLASTERING AND STUCCO WORK.—Four establishments; capital, $2,675.00; wage-earners, 6; wages paid, $2,350.00; cost of material used, $1,888.00; total value of product, $7,300.00.

ROOFING AND ROOFING MATERIALS.—Eleven establishments; capital, $18,730.00; wage-earners, 31; wages paid, $16,632.00; cost of material used, $24,756.00; total value of product, $57,140.00.

NEW JERSEY.

BRICK AND TILE.—Seventy-six establishments; capital, $3,607,413.00; wage-earners, 2,370; wages paid, $835,655.00; cost of material used, $319,637.00; total value of product, $1,845,950.00.

FERTILIZERS.—Twenty-eight establishments; capital, $5,890,270.00; wage-earners, 962; wages paid, $441,177.00; cost of material used, $3,146,022.00; total value of product, $4,290.629.00.

KAOLIN AND OTHER EARTH GRINDING.—Nine establishments; capital, $375,984.00; wage-earners, 167; wages paid, $77,594.00; cost of material used, $276,507.00; total value of product, $479,113.00.

LIME AND CEMENT.—Thirty-four establishments; capital, $2,732,320.00; wage-earners, 995; wages paid, $441,821.00; cost of material used, $936,750.00; total value of product, $1,767,548.00.

MARBLE AND STONE WORK.—Seventy-eight establishments; capital, $2,048,399.00; wage-earners, 1,337; wages paid, $729,575.00; cost of material used, $819,142.00; total value of product, $2,203,757.00.

MASONRY, BRICK AND STONE.—Two hundred and ninety-seven establishments; capital, $2,083,800.00; wage-earners, 4,145; wages paid, $2,394,922.00; cost of material used, $3,245,515.00; total value of product, $7,351,611.00.

MONUMENTS AND TOMBSTONES.—Ninety-two establishments; capital, $452,803.00; wage-earners, 223; wages paid, $139,377.00; cost of material used, $346,273.00; total value of product, $677,861.00.

PAVING AND PAVING MATERIALS.—Eighty-one establishments; capital, $1,080,270.00; wage earners, 1,782; wages paid, $687,911.00; cost of material used, $676,698.00; total value of product, $1,953,473.00.

PLASTERING AND STUCCO WORK.—Thirty-four establishments; capital, $234,923.00; wage-earners, 118; wages paid, $63,942.00; cost of material used, $112,937.00; total value of product, $272,204.00.

POTTERY, TERRA COTTA AND FIRE-CLAY PRODUCTS.—Eighty-one establishments; capital, $15,324,966.00; wage-earners, 8,117; wages paid, $3,841,404.00; cost of material used, $2,384,059.00; total value of product, $8,940,723.00.

ROOFING AND ROOFING MATERIAL.—Eighty-six establishments; capital, $1,132,831.00; wage-earners, 580; wages paid, $328,793.00; cost of material used, $1,033,257.00; total value of product, $1,885,963.00.

MISSISSIPPI.

BRICK AND TILE.—Seventy-four establishments; capital, $494,524.00; wage-earners, 908; wages paid, $200,946.00; cost of material used, $98,871.00; total value of product, $522,325.00.

FERTILIZERS.—Three establishments; capital, $353,497.00; wage-earners, 94; wages paid, $32,800.00; cost of material used, $342,389.00; total value of product, $492,772.00.

MASONRY, BRICK AND STONE.—Eight establishments; capital, $15,590.00; wage-earners, 148; wages paid, $33,326.00; cost of material used, $104,211.00; total value of product, $156,550.00.

MONUMENTS AND TOMBSTONES.—Twelve establishments; capital, $44,210.00; wage-earners, 52; wages paid, $25,032.00; cost of material used, $40,560.00; total value of product, $115,559.00.

POTTERY, TERRA COTTA AND FIRE-CLAY PRODUCTS.—Four establishments; capital, $11,690.00; wage-earners, 21; wages paid, $6,517.00; cost of material used, $4,274.00; total value of product, $18,400.00.

ROOFING AND ROOFING MATERIALS.—Five establishments; capital , $5,775.00; wage-earners, 5; wages paid, $1,250.00; cost of material used, $10,129.00; total value of product, $18,150.00.

NEW YORK.

BRICK AND TILE.—Two hundred and seventeen establishments; capital, $8,740,660.00; wage-earners, 6,737; wages paid, $2,764,879.00; cost of material used, $1,108,595.00; total value of product, $5,684,320.00.

EMERY WHEELS.—Three establishments; capital, $44,854.00; wage-earners, 16; wages paid, $11,360.00; cost of material used, $1,643,392.00; total value of product, $2,866,363.00.

FERTILIZERS.—Thirty-two establishments; capital, $4,600,559.00; wage-earners, 1,033; wages paid, $481,898.00; cost of material used, $1,909,158.00; total value of product, $3,147,894.00.

KAOLIN AND OTHER EARTH GRINDING.—Twenty-four establishments; capital, $5,090,088.00; wage-earners, 201; wages paid, $95,947.00; cost of material used, $275,873.00; total value of product, $587,287.00.

LIME AND CEMENT.—One hundred and seventeen establishments; capital, $8,447,923.00; wage-earners, 3,880; wages paid, $1,753,212.00; cost of material used, $2,408,569.00; total value of product, $6,188,342.00.

MANTELS, SLATE, MARBLE, ETC.—Seven establishments; capital, $603,042.00; wage-earners, 287; wages paid, $204,251.00; cost of material used, $250,832.00, total value of product, $702,871.00.

MARBLE AND STONE WORK.—Four hunderd and forty-nine establishments; capital, $9,037,390.00; wage-earners, 6,360; wages paid, $4,131,267.00; cost of material used, $4,469,228.00; total value of product, $12,354,313.00.

MASONRY, BRICK AND STONE.—Nine hundred and five establishments; capital, $12,915,072.00; wage-earners, 16,634; wages paid, $10,391,281.00; cost of material used, $18,420,818.00; total value of product, $53,287,843.00.

MONUMENTS AND TOMBSTONES.—Four hundred and eight establishments; capital, $2,773,915.00; wage-earners, 1,523; wages paid, $988,962.00; cost of material used, $1,865,997.00; total value of product, $4,018,349.00.

PAVING AND PAVING MATERIALS.—One hundred and sixty-eight establishments; capital, $12,454,065.00; wage-earners, 4,691; wages paid, $2,169,832.00; cost of material used, $3,469,564.00; total value of product, $7,503,566.00.

PLASTERING AND STUCCO WORK.—One hundred and fifty-two establishments; capital, $676,141.00; wage-earners, 1,108; wages paid, $680,045.00; cost of material used, $376,514.00; total value of product, $1,737,124.00.

POTTERY, TERRA COTTA AND FIRE-CLAY PRODUCTS.—Fifty-two establishments; capital, $4,102,667.00; wage-earners, 2,270; wages paid, $872,583.00; cost of material used, $522,408.00; total value of product, $2,389,449.00.

ROOFING AND ROOFING MATERIALS.—Three hundred and twenty-two establishments; capital, $2,654,244.00; wage-earners, 1,629; wages paid, $941,831.00; cost of material used, $1,892,861.00; total value of product, $3,959,080.00.

SALT.—Thirty-eight establishments; capital, $17,231,864.00; wage-earners, 1,279; wages paid, 542,909.00; cost of material used, $958,302.00; total value of product, $2,698,691.00.

NORTH CAROLINA.

BRICK AND TILE.—One hundred and fifty-seven establishments; capital, $445,187.00; wage-earners, 1,408; wages paid, $269,042.00; cost of material used, $146,911.00; total value of product, $641,280.00.

FERTILIZERS.—Eighteen establishments; capital, $2,818,921.00; wage-earners, 427; wages paid, $109,192.00; cost of material used, $1,044,267.00; total value of product, $1,487,625.00.

KAOLIN AND OTHER EARTH GRINDING.—Eight establishments; capital, $268,925.00; wage-earners, 163; wages paid, $29,245.00; cost of material used, $22,774.00; total value of product, $105,929.00.

LIME AND CEMENT.—Four establishments; capital, $11,100.00; wage-earners, 21; wages paid, $2,400.00; cost of material used, $2,081.00; total value of product, $6,642.00.

MARBLE AND STONE WORK.—Sixteen establishments; capital, $98,967.00; wage-earners, 365; wages paid, $88,127.00; cost of material used, $18,131.00; total value of product, $148,993.00.

MASONRY, BRICK AND STONE.—Thirteen establishments; capital, $23,415.00; wage-earners, 466; wages paid, $117,977.00; cost of material used, $222,320.00; total value of product, $380,000.00.

MONUMENTS AND TOMBSTONES.—Twenty-four establishments; capital, $62,933.00; wage-earners, 103; wages paid, $30,638.00; cost of material used, $49,892.00; total value of product, $129,631.00.

ROOFING AND ROOFING MATERIALS.—Five establishments; capital, $15,050.00; wage-earners, 9; wages paid, $4,580.00; cost of material used, $10,225.00; total value of product, $22,475.00.

RHODE ISLAND.

LIME AND CEMENT.—Three establishments; capital, $26,150.00; wage-earners, 40; wages paid, $16,230.00; cost of material used, $17,139.00; total value of product, $48,089.00.

MARBLE AND STONE WORK.—Nineteen establishments; capital, $436,920.00; wage-earners, 700; wages paid, $357,111.00; cost of material used, $152,039.00; total value of product, $761,318.00.

MASONRY, BRICK AND STONE.—Eighty-four establishments; capital, $913,911.00; wage-earners, 2,343; wages paid, $992,566.00; cost of material used, $1,867,991.00; total value of product, $3,383,123.00.

MONUMENTS AND TOMBSTONES.—Thirty-eight establishments; capital, $364,320.00; wage-earners, 205; wages paid, $128,407.00; cost of material used, $126,354.00; total value of product, $371,894.00.

PAVING AND PAVING MATERIALS.—Seventeen establishments; capital, $167,445.00; wage-earners, 221; wages paid, $84,210.00; cost of material used, $89,365.00; total value of product, $238,723.00.

PLASTERING AND STUCCO WORK.—Six establishments; capital, $3,515.00; wage-earners, 28; wages paid, $13,979.00; cost of material used, $3,232.00; total value of product, $21,650.00.

ROOFING AND ROOFING MATERIALS.—Fifteen establishments; capital, $110,268.00; wage-earners, 147; wages paid, $64,507.00; cost of material used, $109,144.00; total value of product, $230,393.00.

Tell 'em you saw it in ROCK PRODUCTS.

Clay.

Clay and Its Properties.

To the man who desires to enter the clay industry the first essential is to know something of clay, its properties. In short, he must know how to answer in a manner the question: "What is clay?"

To give a concrete and clear answer to this question is not an easy matter, either, but from the study of it we come to know a little something about it. The popular idea of clay is that it is a material that becomes pasty or sticky when mixed with water, and owing to this plasticity can be molded into any desired shape, but the popular application of the term clay has great varieties in its character. The term clay itself does not convey any idea of what a certain quality of clay is suitable for.

Clay From a Geological Standpoint.

From a mineralogical standpoint, clay is defined by our best authorities as "an indefinite mixture of more or less hydrated alumina silicates, free silica, iron oxide, carbonates of lime and various silicate minerals, which, in a more or less decomposed and fragmentary condition have survived the destructive agencies to which they have been subjected."

We may attach to this term two points which should be borne in mind; one is, that clays vary widely in mineral properties, and the other is, that they vary as extensively in their chemical compositions. The only property which all clays have in general is that of plasticity when wet, and of becoming hard when burned. From this we can draw that neither the chemical nor the mineral properties of the clay have much to do with the plasticity.

When we start to make a study of clay from its formation we are told by text books that it is made up of decomposed feldspar. Feldspar, be it understood, when it is decomposed under the action of the weather becomes, or rather, yields, a white powdery material to which the term kaolin is given, which is looked upon as the purest form of clay. It must not be taken from this, however, that all feldspar decomposition makes kaolin, for it seems that it is only that which decomposes by being exposed to the weather; in fact, it is said that when the mass of rock decomposes and forms a bed of clay it is found that the finest grade of material is that at the top, and as we go deeper it becomes coarser in nature until it finally merges into the rock itself.

It may be noted in passing, too, that the formation of residual clay frequently takes the shapes of the original rock.

The Different Clay Formations.

Clay of this kind represents original clay formations that have never been disturbed. There is another kind of clay formation which is termed sedimentary clay, and comes from the action of the rain and water, carrying off the material of clay formation from the higher ground and depositing it in layers on the lower ground and on the bottoms of rivers, etc. This does not imply that the only place that sedimentary clays are found is in the bottom of water beds to-day, for the action and formation may have taken place ages ago in some instances. Furthermore, it is said that this class represents the most extensive clay deposits known. Also, aside from the action of the water either now or in ages past, there are deposits of clay due to other agencies. There is what is termed the glacier clay which is irregularly distributed over localities that owe part of their present formation to glaciers. Then, there are some deposits which are called wind deposits. A case of this kind is cited in the clays along the Wisconsin River near Okee and the Merrimac. Still, we may sum up by figuring that the bulk of the clays aside from those found in the original place of formation, known as residual clays, are formed by the agency of water.

The Mineral Properties of Clay.

The most important part of study for the man who desires to utilize his clay or determine what it is best suited for, is not how and when it was formed, however, but of what it is formed and for what use it is best adapted. Still, it is only by studying it in this way that one learns to discriminate closely. As has been stated, the chemical and mineral properties of clay are rather complex, and the following minerals or some part of them are to be found in various compositions of clay deposits:

Aluminum—Kaolinite, feldspar, chlorite, epidote, mica, alum.

Silicon—Kaolinite, quartz, feldspar, chlorite, epidote, mica.

Calcium—Feldspar, epidote, calcite, dolomite, gypsum.

Magnesium—Chlorite, dolomite, mica, epsom salts.

Sodium—Mica, feldspar, sulphate of sodium.

Potassium—Feldspar, mica, alum, sulphate of potassium.

Iron—Limonite, hematite, magnetite, siderite, pyrite, marcastie, mica, chlorite, epidote.

Manganese—Manganese oxide.

Lithium—Mica.

Titanium—Rutile.

Carbon—Carbonates, lignite, woody fibers.

An Attempt at Classification.

From different compositions of part of the mineral properties again we get several distinctive lines of clays which are used for different purposes, but have never been classified to the satisfaction of all. Professor Edw. Orton, in a report of the Geological Survey of Ohio, has given the following classification relating especially to clays of Ohio, but applicable anywhere:

High Grade Clays—Kaolin, china clay and porcelain clay, used for manufacturing fine ware. Fire clay, hard and fire clay, plastic, for making refractory material. Potters clay, for earthenware.

Low Grade Clays—Argillaceous shale, for paving blocks; ferruginous shale, for pressed brick; silicious clays, for paving blocks, sewer pipe, etc.; tile clays, for roofing and drain tile; brick clays, for pressed and ornamental brick; calcareous shale, for common brick, etc.

The first division comprises all clays and shales that contain, in conjunction with not less than 50 per cent. of kaolin base, little else but finely divided silica. The amounts of the fluxing elements are in all cases small, rarely aggregating as much as 5 per cent., and generally falling below 3 per cent. Oxide of iron constitutes much the largest single element of these fluxes. In almost every case the potash is low. Such a division as is suggested here would leave out some highly refractory clays, it is true, but the good properties of such would seem to result principally from the silica they contain.

The second division includes all ordinary clays and shales. They may range in kaolin base from 10 to 70 per cent., but they always carry a notable percentage of the fluxing elements. The alkalies generally make 2 to 5 per cent., while lime, magnesia and iron add two to three times as much. Coarse sand and rock fragments often make a conspicuous part also. These low qualities of the clay more frequently result from a surplus of fluxing element than from a deficiency in kaolin base.

What the Average Man Wants to Know.

Now what the average man wants to know is how to distinguish clay of the different qualities and determine what it is good for, but to accomplish it is not as easy as one might imagine. Our best authorities say that nothing new or valuable in the way of testing clay has been added in the last decade. They say, further, that it is a fact, and one to be regretted, that there is no really valuable way of finding out what a clay can be made to do except to try it.

Of course there are certain things to distinguish clays. For example, tasting will often give a clue to soluble salts, which have a bitter taste. By this means the presence of grit can also be detected.

The presence of carbonate of lime in clay can usually be detected by the use of muriatic acid, because effervesence will ensue when it comes in contact with the mineral. The color of clay is some guide, but it can be taken as an indication of quality only in very wide limits, for sometimes the clay that is black in its green state will be white when burned, it being black while green owing to organic matter.

Then iron, the great coloring agent of clay matter, colors either red, blue, brown or black, depending on the condition of its compound.

The odor of clay sometimes serves as an agent to distinguish its fat or lean character, but there is plenty of room to err in judgment in this, because some of the purest fire clays are practically devoid of odor.

The Only Dead-Certain Test.

In short, while various means of this kind may be resorted to as some guide in the matter, there is no positive or authentic way of getting at the test of clay except by trial, and this trial must be carried on by some one familiar with the behavior of clay. Establishments which are engaged in the manufacture of clay products on a large scale, especially those of high grade, usually have arrangements for testing clay, and the best plan for a final test is to arrange with some establishment of this kind to take a sample of the clay in question and try it. The geologists of States are usually glad to analyze samples, and give their chemical properties, etc., but one should not expect the geologist to follow the matter up by telling a man just what he should manufacture, and just how he should do it. Still, it is well to have the State Geologist pass on clay before going to any great expense to test it.

The Lacustrine Clay Industries of Wisconsin.

Among the very interesting clay reports which have arrived at this office is the report of the Wisconsin Survey on the clay industries of that State by Ernest Robertson Buckley, Ph. D., Asst. Supt. of Surveys. One of the most interesting clays treated of is the lacustrine or lake clay. This clay occurs throughout the Eastern part of the State adjacent to lake Michigan and in the Northern part of the State contiguous to Lake Superior, and constitutes the richest source of the manufacture of cream-colored brick in the State. This clay deposit is supposed to have been formed by the successive advancing and recession of the ice sheet of the glacial period, and it consists mainly of the clay which burns cream color. The only part of this clay which burns red being the upper part extending from one to five feet in exposed banks. The following clay industries are mentioned as operating in this lacustrine clay at the time of this report, 1900-1:

At Appleton, Wis., there are two brick plants, Carter's, and what is known as Boetchers, both working essentially the same clay, the lacustrine or lake clay. Mr. Carter makes brick on a stiff-mud machine and also by the soft-mud process. His plant has a capacity of 75,000 to 80,000 a day. Just east of Mr. Carter's yard is the yard of Mr. Henry Boetchers, which also uses stiff and soft-mud machinery. The soft-mud appliances have a capacity of 16,000 to 18,000, and the stiff mud 20,000 to 22,000 bricks a day. This yard was opened in 1895 and has been operated every day during the season from May 1 to October 10.

The Berlin, Wis., brick yard, which is owned and operated by E. S. Morris, was opened in 1885 and has been worked during the summer of every year since. The process used here is the stiff-mud process and they have a Brewer brick and tile machine which turns out about 15,000 bricks a day.

At Boltonville, Wis., there is a brick yard owned and operated by Wm. Voigt which was opened in 1884 making stiff mud and sand-molded brick.

The Bristol (Wis.) Brick and Tile Works are owned by H. A. Nelson, and have been in operation since 1895. Mr. Nelson manufacturers brick and tile, the tile being the more important part of the business, of which he manufacturers all sizes from 2½-in. to 12-in. with a Brewer machine. This plant has a capacity of 12,000 of 2½-in. tile and 10,000 bricks a day.

The Champion Brick Works, which are owned by Lambert Ansloos, operated by Ansloos & Sons, are situated at Champion, a small village near Green Bay. This yard manufacturers brick and has been in operation since 1889, turning out about 200,000 a year.

The Clintonville (Wis.) Brick Yard began operations twelve years ago and is equipped with Quakers stiff-mud and sword machines, the brick is burned in a scove kiln. The yard is equipped with a pallet shed. The product is red brick.

The Clinton (Wis.) Brick and Tile Works, which are owned by Fred Carter, turns out bricks and tile and has been in operation about sixteen years.

The Green Bay (Wis.) Brick Co. is located about a mile south of Duck Creek. Here they use a soft-mud machine to make brick, turning out about 31,000 a day. The drying is done under pallet sheds and the burning in scove kilns. This yard

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is owned by Edwin Decker, of Sturgeon Bay, and connects with the Chicago, St. Paul and Milwaukee R. R. which furnishes shipping facilities.

The Duck Creek Brick Co. is located about a half mile from the Green Bay Brick Co., on the opposite side of the river. This plant, which was opened in 1895, is operated by C. Crevcure, J. A. Lamoye and C. M. Skeemo. The product is soft mud and sand-molded bricks. During the last few years the output of the plant has been about a million and a quarter bricks a season.

At Michicott, Wis., is located Shaff's yard, which was opened in 1879. In this plant wooden pug mills are used, operated by horse power and the burning is in scove kilns. The output during the season is about a half million bricks.

At Fon du Lac, Wis., Herman Hass owns and operates a brick plant, operated by practically the same process as that of Shaff's.

The Forestville (Wis.) brick yard is located about six miles south of Sturgeon Bay, and has been in operation since 1895. The clay property is Edwin Decker's Sturgeon Bay, and the plant is operated by F. Rose. Brick is manufactured here by the use of the old "Reliable" hand machine, which turns out about 10,000 to 12,000 bricks a day.

Around Green Bay and De Pere, Wis., there are a number of brick yards operated in this lacustrine or lake clay. The brick yard, owned by Hans Hansen, stands somewhat apart from the other yards, being about two and a half miles northeast of Green Bay. This yard was opened in 1883 and is equipped with an "Anderson Chief" soft-mud machine. It turns out about 300,000 bricks a season.

John Hockees owns two brick yards which are on Fox River between Green Bay and De Pere. At the East yard bricks are manufactured by both the soft and stiff-mud processes, and the yard turns out about 2,500,000 bricks a season. At the West yard Mr. Hockees manufactures both brick and drain tile, and the work is carried on in essentially the same manner as in the other yard.

Mr. John Roffers has a brick yard, which was opened in 1887, and turns out red, white and mixed-colored bricks and drain tile. It uses both the soft and stiff-mud machinery, and the brick is burned in a scove kiln. The tile is mostly burned in a round up-draft kiln. This yard turns out from 10,000 to 100,000 tiles, and from 1,500,000 to 2,500,000 bricks a season.

The brick yard of W. Finnegan is near the outskirts of Green Bay, Wis. Only dry-pressed brick is manufactured, and the machine used is one of the earlier Boyd patents with a capacity of 16,000 a day.

What is known as the old Baeden yard is owned and operated by John Laanan, and makes brick by the soft-mud process.

John Baden has a yard, which was opened in 1886, and makes brick with the "Reliable" hand press soft-mud machines.

The Riverside Brick Co., which is owned and operated by Smith Bros., of Green Bay, Wis., is about one and a half miles north of De Pere. This yard was opened in 1895 and manufactures brick by both the stiff-mud and soft-mud process. This yard has a capacity of about 2,000,000 bricks a season.

At Hika, Wis., there are two brick yards. The one owned by August Witte & Son, opened in 1876, turns out about 250,000 bricks a season. The other brick yard belongs to Albert Kolin, and is situated directly south of A. Witte & Son. The process of manufacture consists of pug mill and hand molds, pretty much as in the other yard.

At Kaukauna, Wis., is the brick yard known as the Kaukauna Brick Yard, which has been in operation since 1889, turning out something like 1,200,000 bricks a season.

At Kenosha, Wis., there is a brick yard owned and operated by W. J. Craney. This plant uses the "Monarch" soft-mud machine, dries in racks in the yard and burns in scove kilns. This yard turns out something like 1,000,000 a season, and has been operated since 1887. Another brick yard of this place is the Engel Brick Yard, which is operated by C. Brockenhauser. This yard was opened in 1872 and turns out about 1,500,000 bricks during a season.

At Kewaunee, Wis., there are two brick yards. The Kewaunee Brick Yard, which is operated by Jno. Bergman, and is about a mile West of the lake shore and uses the "Reliable" hand-press machine. A short distance West of this yard is the yard of J. W. Strew, which uses practically the same process of manufacture. The brick from both yards are white or cream-colored.

At Kiel, Wis., is a brick yard owned by August Kamptz. Brick is made here by the stiff-mud process and burned in a permanent up-draft kiln.

At Manitowoc, Wis., there are a number of brick plants, all operated on more or less the same system. P. J. Kaufmann, Andrew Shradwsky, Joseph Krejwski, Frank Weerful, Edw. Fricke, Stephen Bertler and William Fricke and the Manitowoc Clay Co., of which F. E. Dickinson is proprietor, are among those operating at this place.

At Marengo, Wis., Edward Hartman, who operated at Ashland, Wis., a number of years, has installed a plant for the manufacture of brick.

In the vicinity of Milwaukee and Wauwautosa there are five brick yards that use the lacustrine clay. The Lincoln Avenue Yard, which is owned by the Chase Brick Co., uses soft-mud, the stiff-mud and dry-press machinery.

The Milwaukee Brick Co., which has a yard a short distance North of Wauwautosa, uses both the stiff-mud and dry-press processes.

At the yard of Burham Bros., Wauwautosa, the stiff-mud process is used.

Adjacent to the yard of Burham Bros. is the yard of the Kranz Estate, which uses both the dry-press and soft-mud machinery.

Some of the yards in this locality have not been operated continuously of late years, but those named herein seem to have run continuously.

At Neenan, Wis., there is only one brick yard, which is owned and operated by Louis Hanke. This yard was opened in 1891, and has an output of about 1,000,000 each season.

At New London, Wis., Prahl's Brick Yard has a clay bank that is reported to be over 100 ft. deep. The clay at the surface is said to burn red, while that deeper down burns white, and the two together burn a cream color. The brick work is carried on here by the soft-mud process.

Another brick yard in the vicinity of New London is that of Fred. Zerrenner & Son. At this plant the soft-mud process is used, and the capacity is about 1,000,000 a season.

At Oshkosh, Wis., there does not appear to be any brick plants operating at present. The Cook & Brown Lime and Stone Co., of Oshkosh, furnish the larger part of the bricks used in that vicinity, but the brick is obtained from a plant at Stockbridge.

At Port Washington, Wis., there is a brick yard owned by Schremke Bros., which has a clay bank about 100 ft. deep. Twenty-five feet of the top clay is used to manufacture dry-press brick, and the next twenty-five feet under this is used to manufacture stiff-mud brick, and under this occurs about fourteen feet of sand, and then about twenty-five feet of blue clay, the latter being used to manufacture stiff-mud brick.

Guenther & Son, also, have a brick plant at Port Washington, and manufacture both brick and tile. They also ship some dry clay to Milwaukee, where it is used to pack steam pipes.

At Racine, Wis., is located the Chemical Sand Brick Co., of which W. H. Lathrop is proprietor. At this plant brick is made of sand and cement, with hydraulic pressure.

The plants at Racine which are engaged in the manufacture of brick from clay, are those of Bauman & Son, F. M. Burdick, F. H. Hammerson & Son and Hilker Bros. Manufacturing Co. At the Hilker Bros. Manufacturing Co.'s plant the brick is hand-made. There are four grades of repressed brick turned out, dark, medium, white and hard. At the yard of F. H. Hammerson & Son the work is carried on in practically the same manner as is that of the other two yards, with some little variation.

At Shawano is the Shawano Brick Yard, which is owned by Chas. Larson. It turns out something over 1.500;000 brick a season, using the stiff-mud process.

In the western part of Sheboygan, Wis., is located the plant of the Sheboygan Brick and Tile Co., which uses a stiff-mud machine for making brick. The yard is also equipped with a repress machine which is used to manufacture brick.

Tell 'em you saw it in ROCK PRODUCTS.

The Zurhide Brick Manufacturing Co., of Sheboygan, Wis., also uses the stiff-mud process. This yard was started in 1896, and turns out something over a million brick a season.

August Zimball & Son also have a brick yard at Sheboygan, and has six feet of red clay and forty feet of blue clay and an unknown thickness of clay carrying large quantities of gravel and boulders. This yard also uses stiff-mud process and turns out 1,000,000 brick each season.

At Sheboygan Falls, Wis., the only yard operated is that of Jacob Ramaker. He has in clay a mixture of red, yellow and blue, and at the time of this report was manufacturing brick by hand. The output is something over 700,000.

The only plant in the vicinity of Sturgeon Bay is that of Simon & Kesler, which uses the Quaker soft-mud machine. This yard was established in 1884, and has an annual output of a half million bricks.

At Union Gro[illegible], Wis., Michael Niesen has a brick yard using a mixture of red and blue clay which burns red. Also blue clay which burns white.

At Waupaca, Wis., there is a brick yard owned by W. J. Chamberlin and operated by W. E. Chamberlin, which turns out a brick that is a light pink color made by stiff-mud process.

HERE AND THERE IN THE FIELD

H. G. Monen has opened up a brick yard at Defiance, Ohio.

A. R. Chestnut will establish a brick and tile plant at Baker Hill, Ala.

The Lancaster Brick Co., Grange, N. H., has put up a kiln of 80,000 brick.

The E. S. Fox Terra Cotta Co., Reading, Pa., is erecting some new buildings.

John Miller and Frank Bossuot, Havre, Mont., contemplate starting a vitrified brick plant.

The Columbus Brick Works will erect a new factory on Randolph Street, Columbus, Ohio.

The Zanesville (Ohio) Pottery Co. has increased its capital stock from $50,000.00 to $100,000.00.

The Dysart Brick and Tile Co., Des Moines, Iowa, is increasing its capital stock to $12,000.00.

C. G. Botts, B. Striekard and D. C. Williams, of Brenham, Tex., are arranging to establish a brick plant.

The Alley & Smith Brick Co. has been incorporated with a capital stock of $10,000.00, at Detroit, Michigan.

The Vigo Clay Works, Terre Haute, Ind., has enlarge its plant by putting in some additional new kilns.

The plant of the Standard Fire Brick Co., Pueblo, Colo., has been destroyed by fire. Loss, $100,000.00.

E. L. Roberts, Henry Hewett, Jr., and others of Tacoma, Wash., are preparing to start a pressed brick plant.

The Beatrice Brick Co., Beatrice, Neb., is to erect a brick plant on the site of some old pottery works in that town.

The Jacob Daniel & Bros. Brick Co. has been incorporated at Springwells, Mich., with a capital stock of $12,000.00.

The Detroit Brick and Tile Co., which was incorporated last winter, has started up a factory at Maplewood, Mich.

The Waterloo and Cedar Falls Brick Co. has been incorporated at Waterloo, Iowa, with a capital stock of $21,000.00.

The Thomaston Face and Ornamental Brick Co., Bangor, Me., has increased its capital stock from $200,000.00 to $250,000.00.

A. F. Johnson, Latrobe, Pa., has bought the old Cruthers brick yard near West Newton, Pa., and is already turning out brick.

The Colonial Exploitation and Trading Co., of New York City, is figuring on erecting a plant at Sag Harbor, N. Y., for grinding white china clay, etc.

The Alabama Kaolin Co. has been incorporated at Birmingham, Ala., with a capital stock of $26,000.00. Incorporators are : Messrs. John M. Caldwell, W. J. Milner and John London.

The P. L. Ryan Brick Manufacturing Co., of Woodbridge, N. J., has suffered from a scarcity of coal during the last month.

The East Liverpool Brick Manufacturing Co. has been incorporated at East Liverpool, Ohio, with a capital stock of $30,000.00.

The Elma Brick Co., Elma, Wash., which begun business a year ago making brick has now commenced to manufacture tile.

A Mr. Hedrick, of Gravity, Iowa, has bought out a brick and tile factory of Mrs. Stone at Grant City, Mo., and will operate it.

The Southern Fire Brick Co., with main office at Chicago, Ill., has been incorporated in Indiana with a capital stock of $100,000.00.

The Kiesel Brick Co., of Rochester, N. H., has been reorganized with Wm. E. Turner, former superintendent, as general manager.

Graul & Co., brick manufacturers of West Reading, Pa., are reported as being fairly busy these days with three gangs of men at work.

The Syracuse Pottery Co., Syracuse, N. Y., is building a new addition to its plant which will double the present capacity of its works.

The Cary Brick Co., of Mechanicville, N. Y., is putting up a brick plant at Coxsakie, N. Y. This company also has a new plant at Cohoes.

George T. Thompson, cashier of the Chippewa Valley Bank, Eau Claire, Wis., and others are forming a company to manufacture brick.

The Clay Center Pressed Brick Co., Clay Center, Kan., has remodeled and increased the capacity of its plant by additional new machinery, etc.

The latest report at hand says that the finishing touches have been put on the works of the Phœnix Clay Manufacturing Co., at Parnassus, Pa.

The McCloud Brick Yard at Fort Smith, Ark., which has been closed down for the last two years is again in operation with D. A. Anderson as manager.

The Bradshaw Pottery Co., Niles, Ohio, will make considerable improvements in its works this summer, including a new building and additional equipment.

The S. W. Hanum Manufacturing Co., of Masena, N. Y., has a contract to furnish 2,000,000 brick for the aluminum plant of the Pittsburg Reduction Co., at Masena.

The West Branch Fire Brick Co., Lockhaven, Pa., has started in making brick for the season with plans in hand to erect a number of new kilns, and increase their capacity.

The Fort Smith Brick and Fire Clay Co., Fort Smith, Ark., is turning out 25,000 to 30,000 brick a day and expects to soon put in additional machinery to increase the output.

The Hedges Brick Co., of Cornwall-on-the-Hudson, N. Y., has been incorporated with a capital stock of $40,000.00. The incorporators are: A. P. Hedges, Adelia E. Hedges and C. A. Hedges.

The Mielcks Stone and Terra Cotta Co. has been incorporated at New York City with a capital stock of $100,000.00. The incorporators are: Nichol Alinkoff, John Bergesen and Saul E. Frank.

The Manchester Shale Brick Co. has been incorporated at Harrisburg, Pa., with a capital stock of $20,000.00. The incorporators are: D. W. Cox, R. G. Cox, E. Z. Gross, W. L. Gorgas and W. R. Dennehy.

The Whitewood Brick and Cement Co. has been incorporated at Whitewood, S. D., with a capital stock of $1,250,000.00. The incorporators are: Thos. E. Peters, Jno. F. Smith and Neil McDonough.

A. C. Griffin, of Providence, R. I., has bought the plant of the Sag Harbor (N. Y.) Brick Co., which was recently sold at auction. The new owner expects to equip this plant with all new machinery, etc.

The Weir Pottery Co., at Monmouth, Ill., was destroyed by fire the last of May. Loss estimated at $60,000.00. This company manufactured fruit jars which were patented by the late W. S. Weir. The plant is to be rebuilt.

The National Supply Co. has been organized with principal offices 2211 Atlantic Ave., Atlantic City, N. J., with a capital stock of $50,000.00, to manufacture brick and tile; also, building material. The incorporators are: Chas. M. Spiedel, John Bowye and Oliver H. Gutridge.

B. F. Kramer of Charleston, S. C., contemplates establishing a pressed-brick works.

It is reported that an extensive brick-making plant will be established in the Beaumont district by J. R. Bise, of New Orleans, La.

The A. F. Graham Brick Co., Lumberton, Miss., has been formed by A. F. Graham and A. H. Hunton, with a capital stock of $10,000.00.

A new concern has recently been organized at Vriesland, Mich., called the Michigan Brick Co., of which H. D. Langeris is general manager.

The Lawton Pressed Brick and Tile Co. has been incorporated at Lawton, Tex., with a capital stock of $50,000.00. The incorporators are: Sam Strauss, G. F. Silvers, S. A. Strauss, O. P. M. Butler and W C. Stevens.

The Mascoutah Brick Co. has been organized at Mascoutah, Ill., with a capital stock of $6,000.00, to manufacture clay products and artificial stone. The incorporators are: Geo. Frackt, Geo. W. Lischer and Philip H. Poster, Jr.

The Powell Brick and Stone Co., Oakland, Cal., has been incorporated with a capital stock of $30,000.00. Among the incorporators are: C. G. Powell, Samuel H. Williams, Charles E. Fischer, R. B. Mott and A. P. Holland.

The Columbus (Ohio) Pottery Co., which was incorporated a short time ago by A. J. Sheppard and others, is building a pottery plant near Worthington, Ohio. E. A. Montgomery, a pottery expert, is to have charge of the plant.

The Granite Brick Co., Des Moines, Iowa, has been incorporated with a capital stock of $25,000.00 with Carl Newman as president. J. F. Keefner, secretary, and James Watt, treasurer. These with several other parties are the incorporators.

The Capital City Brick Co., of West Virginia, has been incorporated at Columbus, Ohio, with a capital stock of $150,000.00. The incorporators are: W. H. Fish, F. M. Sessions, E. W. Dow, C. A. Ford, J. A. Conrad and Severe Campbell, all Columbus men.

The Anderson Manufacturing Co., with principal offices at No. 5 W. State Street, Trenton, N. J., has been incorporated with a capital stock of $100,000.00, to manufacture pottery. The incorporators are: Chas. A. May, Harry E. Bicknel and Edward Anderson.

The Pittsburg Vitrified Paving Co. has been incorporated at Kansas City, Mo., by Robert Nesch and others. The capital stock is $500,000.00. The company is to have plants at Sycamore, Kan., Pittsburg, Kan., and Leavenworth, Kan., and will manufacture brick, tile and other clay products.

According to an estimate of the Iowa State Geologist, that State had 349 clay industries during 1901 which turned out a product valued at $2,744,200.00. Distributed among the different classes of clay products as follows:

Common brick	$1,651,926
Front brick	85,330
Paving brick	227,378
Hollow brick	3,000
Ornamental brick	2,229
Fire brick	803
Drain tile	516,714
Sewer pipe	53,500
Sidewalk blocks	1,570
Hollow blocks	59,270
Burnt clay ballast	101,500
Pottery	26,200

Violins From Clay.

The *British Clayworker* says that a well-known manufacturer of the Messein ocarinas and porcelain organs has invented a process for the manufacture of violins and mandolins from clay. Some violins have already been completed, and the inventor has applied for letters-patent for the same in different countries. Under this process the violins are cast, and every violin is guaranteed a success and to be excellent for producing music. The latter quality constitutes precisely the chief value of this invention. The porcelain body, it is claimed, is better able to produce sound than a wooden one, since it co-operates in the production of sound, making the notes soft and full. The mandolin, much played in Southern countries, is also made of porcelain, and the musical sound of this instrument is likewise stated to be improved. In shape the porcelain violin is an exact imitation of the wooden instrument.

Tell 'em you saw it in ROCK PRODUCTS.

Asbestos and Similar Products.

There are a number of allied substances which go along, to some extent in the same class as asbestos, including "mineral wool," "rock wool," etc. The "mineral wool" is a product of furnace slag, and the "rock wool" is produced from melting a combination of granite and limestone. It is likely that these two products are in a measure responsible for the falling off in the use of asbestos in the last three years, for they are both of comparative new origin.

In discussing asbestos, in "Mineral Resources of the United States, 1901," Dr. Joseph Hyde Pratt says that two distinct minerals are mined and sold under the name of asbestos; one, a silicate of calcium and magnesium, is a variety of amphibole, and the other, a hydrous magnesium silicate, is a variety of serpentine known as chrysotile. They are equal in their heat-resisting qualities, but the chrysotile variety is the superior in strength and elasticity of fiber, and therefore commands a wider market. The chrysotile fibers are short, varying from half an inch to two and a half inches in length; amphibole fibers have been found that were three feet long. Amphibole asbestos occurs in quantity in several localities; but at the present time the Salt Mountain deposits at Santee, 12 miles Northwest of Clarksville, White County, Ga., are the only producers. A new deposit, which promises well, had been developed at Northwest Habersham County, Ga., and on Tryon Mountain, about one and a half miles west of Skyuka, Polk County, N. C., amphibole asbestos has been found in a series of pockets. A promising occurrence has been found in Bedford County, Va. about 12 miles Southeast of Bedford City.

Known deposits of chrysotile asbestos are few at the present time, the only one being those in Canada, Vermont, Wyoming and California. Practically all the chrysotile asbestos, used in this country and Europe, is obtained from the deposits at Black Lake and Thetford, near Sherbrook, Ontario, Canada. The mining is by means of open quarries. The new uses and the consequent constantly increasing demand for chrysotile asbestos should result in the enlarged production of this material in the United States in 1902, the year 1901 having been what may be called a year of development work. The Vermont deposits are located in the Northern Central part of the State, on and near Belvidere Mountain, in the towns of Eden, Lamoille County, and Lowell, Orleans County. There are four companies operating in this vicinity: The New England Asbestos Mining and Milling Co., on the South side of Belvidere Mountain; the National Mining and Developing Co., on the Southeastern side of the Belvidere Mountain; the Tucker Asbestos Co., on the Eastern slope of Belvidere Mountain, all in Lamoille County; and the Vermont Asbestos Co., two miles Northeast from Lowell Village, in Orleans County. The mining here also is by means of open quarries. The Wyoming deposits are in the vicinity of Casper, Natrona County, and they are now being thoroughly developed by the McConnell Asbestos Co., of Pittsburg, Pa. A number of other asbestos properties are being developed by various persons in this same general neighborhood. In California asbestos mining during 1901 was confined to the deposits in Riverside County, operated by the Pacific Asbestos Co. An asbestos prospect has been developed between Greenwood and Georgetown, El Dorado County; also in Calaveras County, in the vicinity of Copperopolis, the Elva asbestos mine has been developed to a limited extent. Chrysotile asbestos has been mined to a limited extent by the Berkshire Talc Manufacturing Co., in the town of Hinsdale, Berkshire County, Mass. Chrysotile asbestos is reported also as having been found in the Upper Apple Gate district, near Grants Pass, Oregon, near the Oregon-California boundary; in the Enchanted Lake region West of Sims Station and near the line between Trinity and Shasta Counties, California; and near North Wilkesboro, Wilkes County, North Carolina. Both kinds of asbestos are used where non-conductivity of heat is the important factor, but it is the chrysotile variety that is used in the manufacture of cloth, rope, felt, buckets, tubs, washers, and so on. The production of asbestos in the United States during 1901 amounted to 747 short tons, valued at $13,498.00, as compared with 1,054 tons, valued at $16,310.00, in 1900, and 681 tons valued at $11,740.00, in 1899. The imports of asbestos in 1901 were valued at $691,828.00, as compared with $355,951.00, in 1900. The Canadian asbestos product in 1901 was valued at $1,186,434.00, as against $763,431.00, in 1900.

Salt.

The Story of Salt, from the Twelfth Census.

[CONCLUDED.]

Utah.

The manufacture of salt in the Territory of Utah began almost immediately after the advent of the Mormons in 1847. The first salt was harvested from the shores of Great Salt Lake in the following year. The water from the lake being thrown back upon the shore by Westerly winds prevailing in the spring, formed small pools of brine which evaported during the warm, dry weather of July and August leaving deposits of salt. This was scraped up and used for domestic purposes and for the curing of meats. The early settlers were supplied in this way until about 1860, when the idea was conceived of making dams in low places which would hold large quantities of water. Salt was made in this way in 1860, but no product is reported by the census of that year. The dams were flooded in the spring, and the salt deposited during the summer by solar evaporation. As the summer is generally dry, it is not necessary to cover the ponds, and the process of evaporation is practically a continuous one. At about this time the chlorination process for the reduction of silver from its ores was discovered, and the first use of salt from Great Salt Lake for this purpose is reported to have been made at the Alice mine in Butte, Mont. This was before the days of railroads, and the product was carried on the backs of mules from the lake to the mine at a cost of about $200.00 a ton.

It does not appear from the census records that this very largely increased the production from the lake, as the amount reported in 1870 was only 1,950 bushels. By 1880, however, the output had increased to 483,800 bushels, and a number of large companies had in the meanwhile been formed. By 1890, this output was still further augmented to a production of 3,132,143 bushels, valued at $144,300.00.

In 1899, Utah produced 235,671 barrels, equivalent to 1 178,355 bushels, nearly all of which was made by solar evaporation. In the making of salt by solar evaporation, the pumps are started each year about the month of March, the brine being pumped into large reservoirs, each covering from ten to twenty acres. As the brine becomes stronger it is drawn off into other reservoirs or sloughs covering from three to fifteen acres. Sloughs are made with a hard clay bottom and with a levee thrown up three or four feet high around the sides to retain the brine and at the same time furnish a ditch on the outside to carry off fresh water. The sloughs are replenished from time to time during the summer, the reservoirs being kept stocked until September or October, by which time salt is deposited to the depth of from three to six inches. Harvesting then begins with the wheelbarrows and tramway, the salt being stacked on the banks in large piles shaped something like a haystack, but not so high. A crust which answers every purpose of a shingle roof forms on each pile. This is the crude salt ready for market; it is hauled to the mills for refining purposes or is shipped in this crude state to the silver mills working under the chlorination process.

The latest improved machinery in the mills consists of revolving cylinders, roller buhrs, and a series of sieves. The salt is hauled to the crusher, whence it is carried by hoppers to the heated cylinders, which deliver it perfectly dried to the roller buhrs; thence it goes to the sieves. It is purified by means of a suction blower as it passes over the sieves. The impurities are lighter than the salt, and it passes over the sieves the suction is set with just enough strength to take off the impurities and allow the salt to pass on to the bins, the different grades being conveyed to the proper bins by a series of hoppers.

The Port Huron Salt Co., St. Clair, Mich., is now turning out 2,600 barrels a day, and is still unable to supply the demand. It is said that the capacity of their works will be increased some time during the summer.

The Salt Springs Solar Salt Co., Syracuse, N. Y., recently held an annual meeting of its stockholders and elected the following officers: President, E. B. Judson; secretary-treasurer, J. G. Wynkoop.

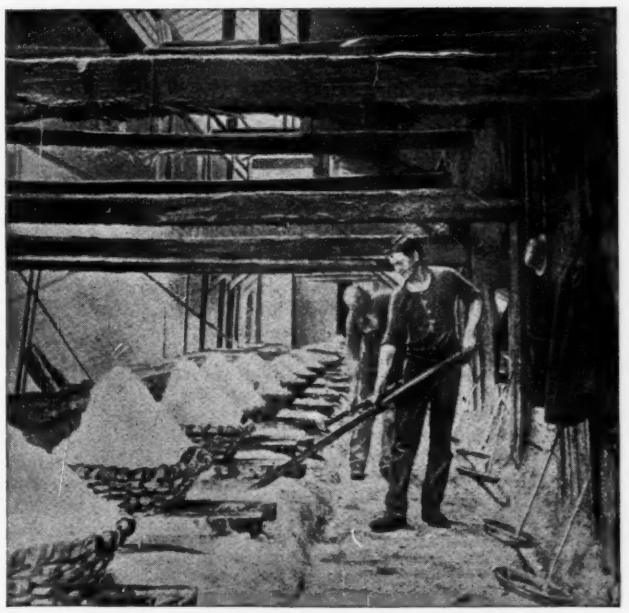
Manager Mulkey, of the Anthony (Kan.) Salt Co., has been adding new pumps and getting in shape for good business this summer. The present capacity of the plant is 600 barrels a day, and if business justifies it, he will increase it to twice that amount.

The personnel of the Loan Salt Co., Grand Saline, Tex., has undergone some changes recently. Thos. S. McGroin is now general manager, instead of D. C. Ernest, who resigned, and there has been some changes in the ownership, some of the old stockholders having sold out.

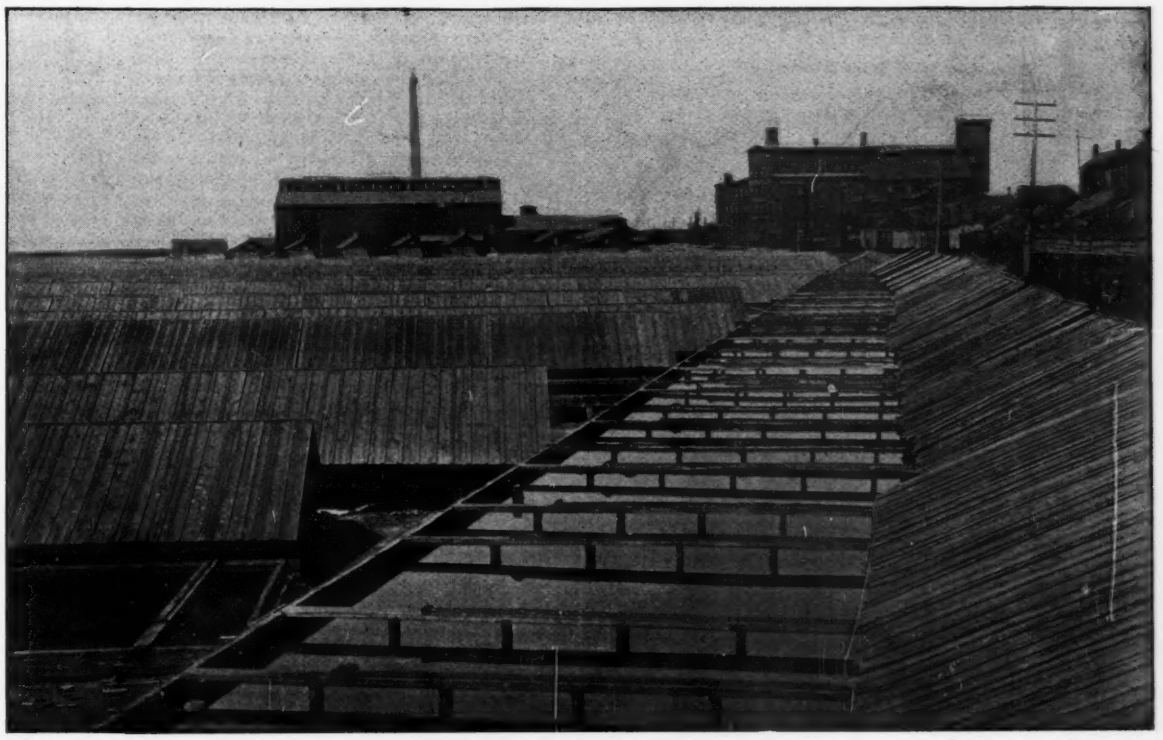
The story of the Onondaga salt reservation was told briefly in ROCK PRODUCTS for May, but the following additional in this connection, which is given as a part of the history of the development of the work, will add interest to the pictures printed herewith:

On the twelfth of September, 1788, the Onondagas—a tribe of Indians—sold to the State of New York the so-called salt reservation, comprising the lands for one mile around the lake, some 20,000 acres, on the condition "that it shall remain forever for the common benefit of the people of the State of New York and the Onondagas for the purpose of making salt." In 1793 the first arch with four potash kettles was built by William Van Fleck and Moses DeWitt. The legislature of New York passed the first laws regulating the manufacture of salt in 1797, appointing William Stevens as the first superintendent of the salt reservation. The wells at that time were shallow holes dug in the ground. Superintendent Kirkpatrick, in 1806, sunk one which was twenty feet square by thirty feet deep, from which every manufacturer by a common hand-pump supplied his works with the necessary brine. In 1820, the so-called "bittern-pan" was introduced for the removal of the impurities from the brine in the kettles. In the following year, viz., 1821, the first solar vats, for the manufacture of "Solar" or coarse salt were erected. Major Benajah Byinton, about this time, made the first attempt to bore for rock salt North of the city of Syracuse, when, having reached a depth of 300 feet, he abandoned the undertaking. Several other attempts have been made to find rock salt under the salt reservation, but all proved failures.

In the year 1888, a well was sunk at the foot of "Tully Hills" about seventeen miles south of Syracuse, and after reaching a depth of 1,218 feet, struck a bed of rock salt 43 feet in thickness. This upper rock salt stratum is underlaid by a second rock salt bed of about 54 feet thickness, with a layer of shale between them, and this rock salt deposit is the source of the Onondaga brines.



BOILING SALT IN KETTLES.
Works of the Onondaga Coarse Salt Association, Syracuse, N. Y.



SALT STOREHOUSE AND COVERS.
Works of the Onondaga Coarse Salt Association, Syracuse, N. Y.

For the Retailer.

Handling Stone on a Stoneless Prairie.

I have been requested to give the readers of this paper something of what I know about the handling of stone on a stoneless prairie. It is somewhat of a hard subject to write about, there being but little opportunity to indulge in flowery rhetoric or wander in the fields of imagination, and so, you will find that what I have to say on the subject of stone will be of a practical nature only. The writer was for many years a retail lumberman in the State of Nebraska, going there in the early part of the '70's, when the country was new and undeveloped. I was confronted with entirely new condition, not only in living, but also in matters pertaining to the trade as well.

I was fairly well acquainted with the character of lumber and its use in all kinds of building construction, but I knew little else of other building material; consequently I found that I had a great many things to learn, and to learn them became necessary. As may be supposed, the principal, and for a time, the only material that could be readily obtained was lumber. A large portion of the houses that were first erected had not a particle of anything else in their construction but wood and the nails that fastened it together. Even the chimney was a stove pipe stuck through the roof, the foundations were square timbers or posts put in the ground and the superstructure fastened to them.

For some time, stone for such purposes was out of the question, the nearest quarry was 150 miles away, and its production was taken up by the local demand in the vicinity. Gradually, however, as shipping facilities were multiplied, the resources of the State for building stone were rapidly developed, and in a few years there was a liberal supply for the trade. It may not be generally known, but in what is known as the "South Platte Country" in Nebraska, there is no stone except in the Eastern and Southeastern tier of counties, and from them comes most of the stone that is used. It is shipped as far West as the point where Colorado stone comes in competition with it. As may be supposed, there is at certain seasons of the year an enormous demand on the resources of these quarries to supply the trade. I have known what it was to wait three or four weeks for an order to be filled, and then not get all that we wanted.

How a Stock of Stone Shrinks.

One would naturally suppose that it would be easy enough to guard against getting out of a supply of stone, by the simple process of getting them in during the season of dull demand. Very few dealers would do this after the first experience, and I'll tell you why. You see stone is not sold out there as it is in other parts of the country, by the perch or cord. It is sold by the ton, and weighed out to the customer as you would coal, unless there is a job which calls for a number of carloads; these, of course, are hauled off to the building without weighing, but it is billed from the quarry as having so many tons on a car, and the price quoted is at so much a ton, and none of you who have ever handled stone as a part of your trade, may not be aware that when it is first taken from quarry it has what is termed the "quarry sweat" on it; that is, there is more or less dampness about it, and as a matter of course this adds materially to its weight. The softer variety, being more porous, will have more of this "sweat" than that of the harder kind, and therefore, the percentage of the shrinkage in weight from the evaporation consequent on its exposure to the air is very much greater, and in the handling of this soft stone considerable allowance must be made for it in the retail price at which it is sold.

Now, if you go at it, and pile up a stock of two or three hundred tons of this soft limestone in order to avoid the loss of trade during the busy times, you must expect to lose considerable by the inevitable shrinkage, especially if it happens that the season is a dry one, even in the normal conditions of the climate; at that altitude the air is much drier in Nebraska than it is in the States west of it, and there are times when a ton of stone fresh from the quarry will shrink in weight all of twenty per cent. in a month's time. This is one of the causes of loss from stocking up, there is yet another one, although not so serious in results, but is infinitely more bothersome to the dealer. Any one who is in the coal business, knows how unanimous is the demand from customers for the larger-sized lumps, and if let alone to have their way in the selection, the residue of the pile will be what no one wants. It is the same with stone. There are many times during the rush trade of a day when a man's time is worth more in the work of shoving out lumber than it is in helping to load up a wagon with stone, as well as being less of a back-breaker. So the customer for stone will be allowed to go and do his own loading. I never saw the man yet, saint or sinner, that was proof against the temptation to pick out the most shapely and desirable blocks of stone in a pile.

Dealing With the "Hog" Class.

You know there is a very large portion of people in this world that belong to what I call the "Don't give-a-dam class." You'll find them everywhere, and the man who goes to a coal bin or stonepile to help himself, invariably exhibits a disposition to "hog it," caring nothing for the wants of those who come after him, and so by the time that a pile of stone is about two-thirds gone, the rest is of such a character that the dealer finds it difficult to dispose of it at a profit. In the building of a well, spawls can be used, as well as all the irregular pieces, but when stone is chiefly used for only blocking-up purposes, the flat and square-shaped pieces are the most sought after. With the loss from these two sources, there is not much profit in retailing out stone from a pile that has been stocked to anticipate the delay in getting orders filled. It is not an easy matter to have a sliding scale of prices for what a customer takes on such an article as stone, and therefore, it used to be the rule to have one price, whether it was taken from the car or from the pile.

Some Western Retail Prices.

If I remember rightly, the retail price on stone in quantities less than a carload in the earlier days of the trade out there was $3.00 a ton of 2,000 lbs., but with the opening of the new and larger quarries, and a lower rate of freight we got them in so that we could sell them at $2.00 a ton, which gave us a gross profit of forty or fifty cents, and where there was not much competition it was perhaps a little more. This, of course, was on the supposition that as many tons were sold from a car as was billed. The loss which I have spoken of, cut this down more or less, of late years. The dealers have handled stone more for accommodation than anything else. If they get their money out of it they are doing well. The chief reason for this is the competition from the contracting carpenters and masons. These people don't keep them on hand to retail out in small lots as the lumber dealers are expected to, but when they get a job which calls for one or more carloads, they buy and ship them in for themselves. If they would stop at this it would not matter so much, but it frequently occurs that the man who is going to build, will take the notion that he can save money by purchasing all the material himself, and he goes to these men for his stone, which they will order for him and charge him the small commission of about $2.00 a car, and this pretty well ruins the business for the regular dealer as far as profit in it is concerned.

Where the Quality Is Not a Question.

As may be supposed, there is not much choice in the quality of the stone in that section of the country. Whatever line of railroad a dealer happens to be located on, he has to handle the article that is quarried at some point on that road, and this leaves him no discretion as to where he will buy. The best stone around there comes from the region about Blue Rapids, Kansas, and it probably has no superior for general purposes anywhere in the country. It is a blue limestone, very hard, and has proven to be impervious to the hardest conditions of use and weather. It is well quarried, and the best only shipped to the retail trade. If a dealer is on a line of road that has direct communication with these quarries he is fortunate as far as the handling of stone is concerned, as there is but a small per cent. of loss in the sale of it.

There is only one drawback about it. It is a man-killer to handle it alone from the ground up into a wagon box, and for this reason, too, the purchaser does not have it all his own way in the selection of what he wants, as there is generally a man for the yard to help him load it. Take it all in all, there is not much pleasure in the handling of this heavy article of stock. C. H. K.

Tell 'em you saw it in ROCK PRODUCTS.

Fertilizers.

In the Tennessee phosphate district the shipments for the first three months of the year did not come up to the average, but this was partially due to bad weather, scarcity of wagons, labor and other causes, and is not taken as a general indication of a decrease; in fact, it is thought before the year winds up, the output will be larger than last year.

The declaration of peace in South Africa is stimulating prices somewhat in all parts of the country. Prices are firm all around, and there seems to be considerable activity in the phosphate fields.

As to foreign markets *Phosphate Industries*, of Amsterdam, for June 6 says:

"The tendency for Florida hard rock has further improved, especially for shipments during 1903. As a very large consumption has still to be covered, buyers will perhaps be mistaken if they rely upon purchasing at the lower price again later on. Freights are also firmer for later positions. Various conditions are developing which are almost certain to cause an early improvement in the freight market, for instance the steamer trust and the peace treaty in South Africa.

"Land pebble is in great demand in the Mediterranean and France. Algerian is also freely demanded. The other kinds are neglected.

"The tendency of the phosphate market is decidedly firmer, as is to be seen by reports from all parts. England, Scandinavia, France and Italy are buyers, but all the same but little business has been brought about as yet, for the buyers would like to make the contracts at the limits, which were in force about a fortnight ago, whereas the sellers are asking prices 3/8 to 1/2 d. above those limits."

It is reported that the Tennesse Valley Fertilizer Co., Florence, Ala., contemplates enlarging its plant.

S. S. Lord, Mt. Pleasant, Tenn., is arranging to mine phosphate on the property of the late J. W. Pager, near Columbia.

The Nashville Fertilizer Co., Nashville, Tenn., contemplates increasing its capital stock $80,000.00, to double its capacity.

The Phosphate Neuclein Chemical Co. has been incorporated at Lexington, Ky., with a capital stock of $10.000.00. The incorporators are: R. R. and W. A. Harting and O. H. Browning.

F. S. Royster, of the Royster Guano Co., Norfolk, Va., has recently returned from a trip to Germany, where he has been looking after their interests, and it is said that his company will extend operations considerably.

The plant of the Southern States Phosphate and Fertilizer Co., at Savannah, Ga., has been completed. Then N. B. Pratt Laboratory, of Atlanta, Ga., designed and erected the plant, which is to have a capacity of 40,000 tons a year.

The Georgia-Florida Chemical Co., Jacksonville, Fla., has been incorporated with a capital of $2,500.000.00 to manufacture commercial fertilizers. W. Duncan White, E. H. Benson and A. C. Hamrick are the incorporators.

The Creole Oil and Sulphur Mining Co. has been incorporated at New Orleans, La., with a capital stock of $600,000.00. The directors for the ensuing year are: F. W. Wicker, D. A. Lines, F. W. Gibson, F. Carambat, P. S. Schneidau, J H. Gregory, Jno. C. Wickliffe, A. Gronchy, Jr., Ernest Ellinger and Louis Suyby.

The Southport Phosphate Co., Mt. Pleasant, Tenn., has been incorporated with a capital stock of $200,000.00. The incorporators are: L. W. Botts, D. S. Ridges, L. M. Pender, of Louisville, Ky.; Willard Salisbury, of Wilmington, Del., and others.

Monuments.

R. L. Alden, formerly of Montrose, Pa., has opened up the Deposit Marble and Granite Works, Deposit, N. Y.

The Burns Memorial Association, Boston, Mass., is proposing to erect a $25,000.00 monument to the memory of Robert E. Burns.

Local pottery manufacturers of Trenton, N. J., have raised $500.00 toward erecting a monument in memory of the late J. Hart Brewer.

Geo. R. Cornwell and others, of Pen Yan, N. Y., are taking steps to raise $5,000.00 to $8,000.00 to erect a soldiers' monument at that place.

Fred. A. Smith, proprietor of the Norwalk (Ohio) Monument Works, has started a stone yard for selling all kinds of building stone.

The Westfield (Mass.) Granite and Marble Co. has bought the monument business of Herman Secere, and will combine the two institutions.

J. W. Eby, of Mechanicsburg, Pa., has secured the contract to erect a $250,000.00 monument over the grave of Governor Ritner at Mount Rock.

H. J. Bonman and others, of Alton, Ill., are discussing a proposition to erect a monument in memory of the Confederate dead at North Alton.

Congress has passed a bill appropriating $10,000.00 for the erection of a monument to the memory of General Hugh Mercer, of Fredericksburg, Va.

Kavanaugh Bros., 170 Columbus Avenue, Boston, Mass., have opened a branch office at 819 Elm Street, Manchester, Mass. Mr. D. W. Cummings in charge.

The Friend W. Jenkins Camp of the Service Men of the Spanish War, Pittsburg, Pa., is raising funds to erect a monument to the dead hero, whose name the camp bears.

Dr. H. O. Fjelde, of Abercrombie, N. D., has revived the proposition to erect a $40,000.00 monument in memory of Scandinavian soldiers who fought in the Civil War.

The Murfreesboro, Tenn., Chapter 91, Daughters of the Confederacy, is taking steps to raise $500.00 to erect a monument to the Confederate dead buried in Evergreen Cemetery.

The P. N. Peterson Granite Co., St. Paul, Minn., has arranged to furnish a very elaborate monument to be erected in honor of the late Captain Charles S. Barker at Duluth, Minn.

Jos R. Myers, a tombstone man at Kokomo, Ind., is setting a new fashion in the tombstone business. When he opened up his place of business he gave a grand opening and had an auction sale.

Ex-Mayor Shieren and other prominent citizens of Brooklyn, N. Y., have started in to raise $10,000.00 to erect a statue of Henry W. Maxwell at the building of the Institute of Arts and Sciences.

The County Board at Fon du Lac, Wis., has appointed a committee consisting of M. M. Finnegan, Peter McGalloway and John Miles to take charge of the planning of a $5,000.00 soldiers' monument.

Luckmeyer Bros., of Mellrose, Minn., have bought a red granite quarry at St. Cloud. They already own two quarries, and this new purchase makes them the largest owners of St. Cloud quarry property.

Merrs, Cross Bros., Northfield, Vt., have turned out quite a lot of work this year so far. One job worth special mention is the McKinley Memorial, presented to the city of Muskeegan, Mich., by Chas. Hockley.

Congress has passed a resolution carrying $100,000.00, as a part contribution for the erection of a monument for prison-ship martyrs at Fort Greene Park, Brooklyn, N. Y. The State of New York has already appropriated $25,000.00 for this purpose, and has authorized the City of New York to pay $50,000.00, and $25,000.00 has been raised by private contributions.

M. R. Waad, Wellington, Ohio, will erect a new brick building this year for his monument business.

J. T. Empey is arranging to open a branch marble works at Sturgeon Bay, Wis. The branch establishment will be in charge of A. A. Bartholomew.

Wm. G. Cook and W. D. Kenneth have formed a partnership under the firm name of the Westerly Granite Co., with offices at 390 Boyston Street, Westerley, R. I., to deal in memorials in granite, marble and bronze.

Congress has passed a resolution for a commission to build a monument costing a half million dollars at Washington, D. C., in honor of Abraham Lincoln. The resolution carries an appropriation of $25,000.00 to be expended in the procurement of plans for the monument.

Delaware County, Pa., will erect a monument in front of the Court House at Media, Pa., in memory of the soldier and sailor dead of the county. The county will pay $1,000.00 toward the amount, and it is thought that $500,000.00 more will be raised by subscription.

The Maryland Daughters of the Confederacy have raised about $16,000.00, and will erect a monument at Baltimore, Md., to the memory of the Confederate dead. They have selected a design presented by Sculptor M. F. Wellington Ruchstuhl, vice president of the New York Municipal Art Society.

The Illinois Department of the G. A. R. has decided to erect a monument to the memory of Governor Yates, the war governor of Illinois. W. H. Browning, of Chicago; H. M. Trimble, Princeton; Charles F. Mills, Springfield; W. G. Cochran, Sullivan; Horace Chapin, Jacksonville; Thos. W. Scott, Fairfield, and H. S. Dietrich, Chicago, were appointed as a committee to look after same.

Mr. H. P. Colvard, proprietor of the Dalton (Ga.) Marble Works, is preparing to install pneumatic machinery, and it is said that when it is equipped and improvements completed he will have one of the most complete plants in the South to do monumental work. He also does some building-stone work. He established his business at Dalton in 1892, going from Chattanooga, Tenn., there. The works are conveniently located on both the Western and Atlantic and Southern Railroads, and at present writing they are shipping about 100 jobs per month, the trade extending all over Alabama, Mississippi, Georgia, Tennessee, Kentucky and Ohio, with shipments to the West, they maintaining over thirty traveling salesmen.

Iowa Jottings.

CEDAR RAPIDS, IOWA, June 21.—"By their works ye shall know them." This can correctly be applied to the marble and granite fraternity of our city. Most of the better class of dealers are pushing a higher class of work and trying to discourage the use of inferior work and shoddy material. Still it is with regret that we admit having a goodly amount of the cheap class still among us.

The dealers are generally well pleased with the trade they have had for six months of this year, especially those who carry good stocks, and are getting away from the old peddling practice of selling pictures. This change to more business-like methods are very gratifying thereunto.

Anderson Bros. & Johnson, of Granite Heights, Wis., who quarry and manufacture the immensely popular Wisconsin red, have all the orders booked that they can get out up to October 1.

S. Wm. Waltor, of Anamosa, Iowa, recently contracted to erect a fine family monument to Colonel Shaw, of that city. It is said that when it is completed it will be one of the finest monuments in Eastern Iowa. It will be built of light Barre granite, fine hammered and carved. Canton Bros. are to do the work.

Toombly & Anderson, of DesMoines, Iowa, are now occupying their new building at 618 E. Locust Street, and have added a complete line of mantels, grates, tiling, etc. They are very conveniently located and are doing a nice business. H. C. M.

John Pierce, Hallowell, Me., has been awarded a contract involving $2,000,000.00, to furnish dressed granite for the new City Hall to be erected at Newark, N. J. He will employ 600 men in quarrying and cutting the stone.

Tell 'em you saw it in ROCK PRODUCTS.

Asphalt.

The asphalt plant of the Barber Asphalt Co., at Addison, N. J., has been destroyed by fire, entailing a loss of about $15,000.00.

The Memphis Asphalt and Paving Co. has been incorporated at Memphis, Tenn., with a capital stock of $100,000.00. The incorporators are: Samuel T. Carnes, Henry Duffin, J. H. Sullivan, W. W. Talbert and W. E. McGehee.

Wm. B. Kirk, of Syracuse, N. Y., has gone to Venezuela to investigate asphalt deposits for a company that has been formed there with the idea of making a purchase. Among those interested with him in this matter, are John Dumfee, Senator Horace White and George McDonald, of New York.

The Palestine Oil and Development Co., Palestine, Tex., is said to have struck a new liquid asphalt well at their oil borings at Water Station This is the second asphalt well these people have brought in. They are making arrangements to begin marketing the asphalt at an early date.

It looks like the asphalt people get the revolution fever, too, when they get down in Venezuela, for the Warren-Quinlan Asphalt Co. and the New York and Bemudez Co. are wrangling over the possession of some asphalt property down there with armed forces and other characteristics of South American revolutionists.

The Central Asphalt and Refining Co., Brenham, Tex., is building a plant at Port Neches, and it is expected to have the plant completed and running by the first of August. This plant is to be of a capacity to handle 60 cars or two trainloads of oil a day. It will manufacture asphalt from the oil of the Beaumont regions.

The Wonders of Trinidad.

Trinidad, the greatest asphalt country in the world, is just off the mouth of the Orinoco, one of South America's largest rivers, and has a "history." It was wrested from Spain in 1802 by Admiral Cochrane, Lord Dundonald, a Scottish nobleman, and, as a reward for his services and daring, the British Government gave him the lake of asphalt, which at that time was considered worthless and of no other value than as a great natural wonder or curiosity. Nevertheless, with true Scottish cunning and genius for knowing "a good thing." Admiral Cochrane refused all offers to sell the lake, which remains the property of his descendants, the Cochrane family, of Dundonald, Scotland.

The big paving companies and contractors pay the Cochrane family a royalty for right to work the asphalt lake. The appearance of this black, Stygian expanse of pitch, surrounded on every hand by a tropical forest, reminds one of the pictures of Dante's "Inferno." The neghborhood of the lake is said to be the best place in the world to rear children. Children born and reared about the shores of this inky lake grow up surprisingly strong and vigorous. The strong, pitchy ordor of the asphalt, perceptible for miles around, renders the air pure and free from all miasmatic or unwholesome elements, so that the children of this locality never know what it is to be sick or troubled with complaints common to those in other quarters of the globe.

The asphalt lake is one of the wonders of the world. It is of volcanic origin, and seems to be fed from a great subter anean reservoir, for as fast as the asphalt is removed the pits are refilled with great rapidity. In past ages a vast body of vegetations seems to have been buried by some overflow of sand or soil, that afterward became stone and converted into coal. Then, in later ages, this coal seems to have been melted down into pitch or asphalt by the heat generated by volcanoes. The lake covers ninety acres in extent. In the center the asphalt is in a fluid state, but about the edges it is hard enough to bear a person's weight.

Trade Prospects.

Ashland, Wis., will do both asphalt and macadam paving.

A new court house, costing $30,000.00, is to be built at Walker, Minn.

Ocean City, N. J., will spend $85,000.00 this year for street improvements.

Congress has appropriated $6,500,000.00 for new buildings at West Point, N. Y.

Plans are being made for waterworks at Rockwell, Tex. D. C. Fonchen, mayor.

Sylacauga, Ala, will construct waterworks at an early date. T. P. Johnson, mayor.

New waterworks are to be constructed at McKenzie, Tenn. Address "Town Clerk."

Plans have been completed for a union depot at Kansas City, Mo., to cost $4,000,000.00.

It is reported that Albany, Ga., is to build a $40,000.00 court house. Address "County Clerk."

Alva, Okla., it is reported, is to have waterworks that will cost $24,000.00. Address "The Mayor."

The town of Dunn, N. C., contemplates building an electric plant and waterworks. Address "Town Clerk."

The city of Lafollette, Tenn., contemplates building an $8,000.00 school house. Address "The Mayor."

It is reported that Comanche, Tex., will construct waterworks costing $10,000.00. Address "The Mayor."

New Orleans, La., will erect nearly 100 miles of sewers. For particulars address F. S. Shields, New Orleans, La.

The city of Blackwell, Okla., contemplates constructing waterworks to cost $40,000.00. Address "The Mayor."

Plans are being made by George C. Morgan, of Chicago, for waterworks at Houma, La. E. T. Bourg, mayor.

Armour & Co., R. C. Howe, Omaha, Neb., manager, proposes to build a $35,000.00 branch house at Sioux City, Iowa.

A new court house is to be built at La Cross,, Wis., to cost $135,000.00. Address Board of Supervisors, La Crosse, Wis.

C. G. Hipewell, of Davenport, Iowa, has secured a contract to put the new slate roof on the State Building at Glenwood.

The Missouri Water, Light and Traction Co., J. B. Quigley, general manager, will construct waterworks at Clayton, Mo.

The National Howard Bank, of Baltimore, Md., will erect a new building, which to be built with terra cotta with a granite base.

Two extensive filtration plants are to be established at Brimingham, Ala., by the Birmingham Water Co. J. H. Purdy is president.

Plans have been made for the Temple Theater building at Duluth, Minn., to cost $50,000.00 by Oscar Cobb & Son, 82 Dearbon Street, Chicago, Ill.

At this writing it looks like a bill will be passed appropriating $2,500,000.00 for a new building for the Department of Agriculture at Washington, D. C.

Iowa is to spend $65,000.00 a year for five years for completing the Capitol building at Des Moines. For particulars address Chas. A. Cumming, of Des Moines.

The M. L. Ryder Building Co., of Albany, N. Y., has secured a contract to build the new station of the New York Central R. R. Co. at Oneida, N. Y., to cost $30,000.00.

Elzner & Anderson, of Cincinnati, Ohio, have drawn plans for a new bank building for the Charleston (W. Va.,) National Bank, which is to cost about $150,000.00.

Ellsworth, Wis., will spend $15,000.00 for water works.

Homestead, Pa., will spend $61,000.00 improving water works.

Henderson, Ky., has appropriated $17,500.00 for a new City Hall.

Brooklyn, N. Y., will spend $581,000.00 improving its water works.

Scranton, Pa., will erect a Manual Training School building to cost $50,000.00.

The Washington Investment Co., F. W. Keen, president, is preparing to erect an office building at Seattle, Wash., to cost $50,000.00.

Aberdeen, S. D., is to have a new postoffice. Bids will be received by James Knox Taylor, Treasury Department, Washington, D. C., until July 30.

The C. H. & D. R. R. intends to build a new freight depot at Hamilton, Ohio. For information address C. A. Wilson, Chief Engineer, Cincinnati, Ohio.

The Mutual Assurance Society of Virginia is planning to build an office building at Richmond, Va. Clinton & Russell, 32 Nassau Street, New York City, architects.

Plans have been issued for a State armory building on Massachusetts Ave., Cambridge, Mass. It will be constructed of red brick, three stories high and to cost $175,000.00.

F. K. Schmidt will erect a new building of pressed brick and Bedford stone at Milwaukee, Wis., to cost $45,000.00. Nehling & Linde, Grove and National Avenues, Milwaukee, architects.

The St. Louis Southwestern and Dallas Terminal Railway Co. will erect a new depot at Dallas, Tex., to cost $40,000.00. F. W. Steber, Chief Engineer, of Dallas, Tex., will give information.

The Vermont Marble Co., of Princeton, Vt., has secured a contract to furnish marble for the new Government Building at Boise City, Idaho. The contract involves about $17,000.00 worth of marble.

The Bayard Realty Co. and the Geo. A. Fuller Co., 137 Broadway, New York City, are to erect an eleven-story building to cost $450,000.00. A. H. Bowditch, 137 Broadway, New York City, architect.

Reports from San Antonio, Tex., say that the waterworks of that city are to have an additional pumping plant with daily capacity of 15,000,000 gallons. This and other improvements will cost $175,000.00.

The German Savings Bank, corner Fourteenth Street and Fourth Avenue, New York City, will make additions and alterations to its building to cost about $400,000.00. The new addition is to be of granite.

Henry Corn is erecting a building on Fifth Avenue and Fourteenth Street, New York City, to cost $600,000.00. The building will be eleven stories high, and is being built after the plans of Architect Robert Maynicke.

Reports come from Atlanta, Ga., that the Southern R. R. will build extensive passenger and freight depots to cost $800,000.00, for which a site has been purchased. Frank S. Gannon, Washington, D. C., is general manager.

The Broadway (New York) Tabernacle congregation will build a new tabernacle after the plans of J. Stewart Barney and Henry Otis Chapman to cost about $600,000.00. It is to be a fire-proof structure, and will be built of brick and terra cotta.

The Hibernia Trust Banking Co. and the St. Charles Hotel Co., Kansas City, Mo., are planning to erect buildings. The trust company proposes to erect a twelve-story building, and the hotel company to build an addition to its hotel to cost $200,000.00.

Clinton & Russell have filed plans with the building bureau of New York City for a twenty-five story building of brick and terra cotta, to be built at 42 to 43 Exchange Place, for the Wall Street Exchange Building Co., of 25 Nassau Street. The building is to cost about $700,000.00.

Plans have been filed for the erection of a theater building on Manhattan Avenue, New York City, by The Orpheum Co., Percy G. Williams, president. This building is to be three stories high, and will cost $150,000.00. J. B. McElfatrick & Son, 1402 Broadway, New York, are the architects.

Tell 'em you saw it in ROCK PRODUCTS.

Jersey City, N. J., is planning to improve more of its streets.

The city of Galveston, Tex., is figuring on some street and roadway improvements.

L. B. Lipkin will erect a brick business block at Beaumont, Tex., to cost $30,000.00.

Dayton, Ohio, will do some street paving, and seems desirous of using bituminous macadam.

Woodville, Miss., is to build a court house. C. A. Coon, County Clerk, will receive bids up to July 7.

Little Rock, Ark., has inaugurated a movement to pave four blocks with asphalt that will cost $10,000.00.

City Engineer Thomson has filed estimates on street improvement work for Seattle, Wash., aggregating $40,000.00.

The Lane Construction Co., Meriden, Conn., has a contract for constructing macadam roads, etc., at Fort Rodman, Mass.

A new court house is to be built at Springfield, Ohio, to cost $60,000.00. It is to be constructed of sandstone and be fireproof. Robert C. Gatewald, architect.

Ansonia, Conn., is to have a new City Hall, which will be built of granite, terra cotta and brick. Frank H. Johnson is chairman of the committee having the work in charge.

The Southern Railway Co. contemplates the erection of a new station at Atlanta, Ga., to cost $800,000.00. Thomas Bernard, Engineer Maintenance of Way can give information.

The Sussex Realty Co., 30 Broad Street, New York City, is planning to build a sixteen-story office building to cost $650,000.00. Carrerre and Hastings, 28 E. 41st Street, architects.

The Hauges Norwegian Lutheran Seminary, Red Wing, Minn., is to erect a new stone building to cost $45,000.00. Omeyer and Thori, 508 Chamber of Commerce, St. Paul, Minn., architects.

The Senate Committee on appropriations for the District of Columbia has given the city of Washington an appropriation approximating $10,000.00, which is the most generous allowance ever made.

Helena, Mont., is to try some experiments in paving with macadam which Col. Thomas Cruse, of that place, offers to mine and ship for experiment at cost, which it is said will not exceed 23c a square foot.

Sealed proposals will be received at the office of the City Comptroller, at Dayton, Ohio, until noon July 12, for the construction of a bridge over the Great Miami River at Main Street, including piers, abutments, retaining walls, etc.

Bids for grading, paving and curbing Market Street, Warren, Pa., from Water to Seventh Street, will be received by the street committee of that city up till noon July 14. Blanks for bids will be furnished on application, and bids must be accompanied by New York draft for $1,000.00.

The *Construction News* compiled expert estimates showing the building operations in twenty-three cities during May 1902 and 1901, which is not only interesting but also tells the tale of where the building booms are anchored. The figures for May 1902 are as follows:

City.	May 1902.		Per Cent.	
	No.	Cost	Gain	Loss
New York (Boroughs of Manhattan and Bronx)	543	$10,349,210	129	..
Chicago	566	5,245,125	85	..
Philadelphia	1,353	2,836,055	....	28
Brooklyn	519	2,451,025	48	..
Pittsburg	338	1,823,059	....	60
St. Louis	409	1,068,082	....	17
San Francisco	116	881,724	49	..
Los Angeles	373	846,584	110	..
Kansas City	441	830,380	32	..
Seattle	614	703,398	99	..
Milwaukee	253	651,442	41	..
Washington, D. C	373	640,860	....	7
Cleveland	320	592,530	....	51
Minneapolis	457	574,120	....	43
Detroit	362	532,600	....	9
Cincinnati	289	424,235	49	..
Buffalo	163	389,721	98	..
Denver	134	308,205	....	20
St. Paul	133	280,955	....	43
Indianapolis	299	270,057	1	..
Memphis	69	210,404	....	48
Allegheny	83	207,950	2	..
Atlanta	246	169,154	....	19
Totals	8,453	$32,286,875	10	..

Oil.

Production of Petroleum.

In his report on petroleum in "Mineral Resources of the United States, 1901," now in press, published by the United States Geological Survey, Mr. F. H. Oliphant invites attention to the following conspicious features in the production and sale of petroleum in the United States during the year 1901. He notes that the production of crude petroleum was greater than that of any previous year; and that there was a very remarkable increase in the production in the States of Texas and California, a decrease in the production of the Appalachian or Eastern petroleum fields, and a slight gain in the output of the Lima-Indiana region. Of the total production in the United States 80 per cent. came from the older Appalachian and Lima-Indiana fields, leaving 20 per cent. to made up from all the other fields; this amount is 11½ per cent. greater than the proportion furnished in 1900 by the other fields. There was a slight decrease in the number of wells completed in most of the important fields, and stocks held in the Appalachian and the Lima-Indiana fields were also slightly decreased. There was an average decline of about 24c per barrel for crude petroleum at the wells in 1901 as compared with 1900. The exports of petroleum and its products increased and were larger than ever before recorded, although there was a slight decrease in their total value. The year was conspicuous for the new pools found and for the new production in the Southern and Western States, which was followed by the organization of an immense number of petroleum stock companies representing many millions of capital.

The total production of crude petroleum in the United States in 1901 was 69,389,194 barrels, being larger than that of any previous year. It was larger by 5,768,665 barrels, or 9 per cent., than the production of the year 1900. The increase in the production of 1900 over 1899 was 6,291,854 barrels, or 11 per cent., and the increase in 1899 over 1898 was 3 per cent or an average gain of 7.7 per cent. for the last three years.

As compared with the value of the total production of 1900, 63,620,529 barrels, valued at $75,989,313.00; the total production of 1901, 69,389,194 barrels, valued at $66,417,335.00, shows a decline of $9,571,987.00. In the order of production, Ohio comes first, with over 21,000,000 of barrels; West Virginia second, with over 14,000,000 of barrels; Pennsylvania third, with over 12,000,000 of barrels; California fourth, with over 8,000,000 of barrels; Indiana fifth, with over 5,000,000 of barrels; Texas sixth, with over 4,000,000 of barrels; a loss in production, as compared with 1900, for Ohio, West Virginia and Pennsylvania, and a gain or nearly four and a half millions of barrels for California; of a little over three and a half millions of barrels for Texas, and of nearly nine hundred thousand barrels for Indiana. This production for 1901, by fields, was in round numbers for the Appalachian field, 33,600,000 barrels; the Lima-Indiana field, 21,900,000 barrels; the Southern California field, 8,800,000 barrels, and for the Texas field, 4,400,000 barrels.

The quality of the petroleum produced from these new sections is generally much inferior to that produced in the old fields, but the greater part of it is valuable as a fuel in its natual state, or after some of the more volatile products have been removed, and is particularly acceptable as fuel in the absence of available coal deposits in the Southwest and West. In 1901, the Appalachian field produced 48.45 per cent. of the total output, the Lima-Indiana field, 31.61 per cent., and all other fields, 19.94 per cent., as compared respectively with 57.5 per cent., 34.34 per cent., and 8.61 per cent. in 1900. The new fields in Californian, Colorado, Kansas, Wyoming and Texas, it is observed, produced practically 20 per cent. of the total production of 1901, a gain of 11.4 in percentage over 1900, with the probability that the Southwest and West will produce 35 per cent. of the total output in 1902.

The average price paid for all the petroleum marketed in the United States during 1901 was 95.7c per barrel, as compared with $1.194 in 1900, showing a decrease of 23.7c per barrel or 20 per cent., the lowest price since 1898. The gross decrease in value for 1901, as compared with 1900, was nearly 13 per cent., notwithstanding that the quantity increased for the same period a little over 9 per cent. The average price paid for Pennsylvania petroleum, which represents 48.5 per cent. of the total production, was $1.21 per barrel in 1901, as compared with 57 per cent. produced in 1900 and marketed at an average price of $1.356 per barrel, a decline of 14.6c per barrel, or 12 per cent. There was a decline of 37.7c per barrel in the average price paid for California petroleum, and a decline of 76c per barrel for the Texas product in 1901, as compared with 1900—a decline accounted for by the increased production of the new fields developed in both these States.

The total number of wells completed in 1901 in the United States in the search for petroleum approximates 14,250, of which 3,220 are estimated to be dry. The cost of these 14,250 wells is estimated at $21,375,000.00 approximately one-third of the receipts for the entire crude product.

In 1901, for the first time in the history of the trade, the total number of gallons of petroleum and its derivatives exported, exceeded 1,000,000,000, the number of gallons being 1,062,750,306, a gain of 9 per cent. over the exports of 1900. The value of these exports in 1901 was $71,479,124.00, as compared with a value of $73,276,282 in 1900. The total exports of manufactured petroleum from Russia in 1901 was 390,920,095 gallons, about 36.8 per cent. of the exports from the United States.

The average price received for all the various grades of petroleum exported from the United States in 1901 was 6.73c per gallon, as compared with 7.52c per gallon received in 1900 and with 6.83c per gallon in 1899. The developments of the oil pools at and near Beaumont, Texas, and in the section surrounding Bakersfield, California, and the developments at Boulder, Colorado, have been the chief causes of the organization of 1,578 oil stock companies with a capitalization, acknowledged and estimated, of $669,083,000.00 in 1901.

New York continued to be the leading port for the export of petroleum and its products during 1901. Of the total amount shipped abroad, about 56.66 per cent. was sent from that city, 30.75 per cent from Philadelphia, 8.75 per cent. from Delaware ports, 3.75 from Baltimore, and less than one-tenth of one per cent. from Boston. It is estimated that 45 per cent. of the entire product of the crude petroleum produced in the United States finds a market abroad, notwithstanding the high duties that are imposed by almost all countries, except Great Britian, upon all imports of our petroleum. This fact seems to indicate that no other artificial source of light can replace petroleum in the markets of the world.

Talc and Soapstone.

The United States Geological Survey has completed the annual report upon the production of talc and soapstone in 1901, during which period there was a small increase in output and a very decided increase in value.

There is a constantly increasing demand for talc, especially for that suitable for grinding to powder for use for complexion powders and for paper filling, and any new occurrence of this mineral in quantity and near railroad transportation is worthy of investigation.

Talc is employed in the arts in two distinct forms—as powdered or flour talc and as sawed pieces of various sizes and shapes. The flour talc is used as a base for fire-proof paints, for electric insulators, in boiler and steampipe coverings, for foundry facings, in the manufacture of dynamite, in the manufacture of wall papers to give them a glossy appearance (ground mica being the mineral most extensively used for this purpose), in the manufacture of various toilet powders, for dressing skins and leather, and as a base for lubricants, and for many of the cheaper soaps. Nearly all of the fibrous talc produced in St. Lawrence County, New York, is ground and used in the manufacture of paper.

Talc is found in considerable variety in nearly every State along the Atlantic slope, the deposits of best quality being in New York and North Carolina. That obtained from New York is used almost exclusively as a filler in the manufacture of paper, and most of that from North Carolina is ground to a powder and used in the manufacture of toilet powders; a little is used in paper manufacturing, etc. There was but little change in the talc fields of New York, but in North Carolina the Hillyer mine, which had been idle for a number of years, was reopened and produced considerable talc during 1901.

The other States that have produced talc or soapstone are New Hempshire, Vermont, Massachusetts, New Jersey, Pennsylvania, Maryland, Georgia and California. A large part of the soapstone mined in these latter States is ground, and is used for various purposes, as paint, paper filling, lubricants, etc.

In Warren County, New Jersey, a soapstone vein has been encountered which has a northeast-southwest strike. It is worked by the Lizzie Clay and Pulpstone Co., which has an open quarry on the bank of the Delaware River about 20 ft. above the water. This deposit has been worked almost continuously for 20 years, and there have been over 50,000 tons of talc taken out, the larger portion being used in the manufacture of paper. The tailings from the bolting of the ground talc are used to some considerable extent by roofing-paper manufacturers and others. This same vein of talc outcrops across the river and the Pennsylvania side, in the vicinity of Easton, Northampton Conuty, and is worked extensively. The general width of the soapstone belt is from 500 to 600 ft., and it is associated with limestone. Practically all of this Pennsylvania and New Jersey talc or soapstone, which is almost identical in appearance and quality, is put on the market in the form of a ground product.

The production of talc in the United States in 1901, exclusive of the fibrous talc that is obtained from New York, was 28,643 short tons, valued at $424,888.00, as compared with 27,943, valued at $383,541.00 in 1900, an increase of 700 tons in amount and of $41,347.00 in value. The production of fibrous talc was 69,200 tons, valued at $483,600.00, an increase of 5,700 tons in amount, but a decrease of $15,900.00 in value as compared with the production in 1900, which was 63,500 tons, valued at $499,500.00.

SOMEWHAT PERSONAL.

The Continental Brick Co., Pittsburg, Pa., will erect a brick plant on the Allegheny River, having a capacity of 40,000 a day. Capital stock, $250,000.00.

Mr. A. R. Chestnut, Baker Hill, Ala., contemplates establishing a brick and tile works to develop kaolin deposits. The machinery has been purchased.

The Gladespring Brick Co., Gladespring, Va., has been organized with a capital stock of $10,000.00. Has installed machinery to manufacture 25,000 bricks a day.

A brick works with capacity of 20,000 bricks a day will be established by D. H. Scott, of Paris, Texas, and T. J. Jones, of Dallas, to manufacture bricks at Dallas, Texas.

M. D. Frost and Ed. Hornbrook are organizing a company to manufacture bricks without burning, by a new process that is said to stand a pressure of sixty-five tons. Capital stock, $100,000.00.

Lawton Pressed Brick and Tile Co., Lawton, Okla., has been incorporated with a capital of $50,000.00, by Sam Strauss, G. F. Silvers, S. A. Strauss, O. P. M. Butler and W. C. Stevens.

The Schratweiser Fireproof Construction Co. has been incorporated at Crawford, N. Y., with a capital stock of $250,000.00 by Jacob Schratweiser and other Brooklyn parties. The company will carry on a business in brick, stone, cement and deal in all kinds of building material.

Among our callers this month was Geo. L. Kice, secretary of the Mitchell (Ind.) Lime Co., who had run down to Louisville for a day. Mr. Kice was a former citizen of Louisville, and it was like a visit back home to him. He is quite enthusiastic about the lime industry, in which he is connected, and we do not blame him for it, as they have a business that any man might be proud of.

"Powderpaint" is the title of a pamphlet issued by A. L. Rice, of Adams, N. Y., who manufactures a dry powder fire proof, sun proof and weather-proof paint which he says can be mixed with cold water and spread just like oil paint. The pamphlet contains samples of colors and information in regard to paint and how to apply it. The title page indicates that they received the highest award at the Pan-American Exposition,

Tell 'em you saw it in ROCK PRODUCTS.

Side Talk.

F. C. Haws has purchased lime kilns and quarries at Templeton, Wis.

The Carson Lime Co., Riverton, Va., is erecting some additional lime kilns.

The Powhatan Lime Co., Brockett, Va., has equipped a new lime plant.

The Potomac White Sand Co., Green Springs, W. Va., is erecting a new sand plant.

The Malvern (Ark.) Mining and Mineral Co. is said to have struck a vein of gray ocre.

The Burr Oak (Mich.) Cement Tank Co. has been incorporated to make cement tanks, etc.

The Ludowici Roofing Tile Co., Chicago, Ill., has increased its capital stock from $100,000.00 to $175,000.00.

S. C. Bratford, Storm Lake, Iowa, has purchased the plant of the Sioux Brick and Tile Works at Sioux City.

The Beaver Valley Sandstone Co. has been incorporated at New Castle, Pa., with a capital stock of $10,000.00.

The Seminole White Lime Co., Oklahoma City, Okla., has been incorporated with a capital stock of $25,000.00.

The Capital Slate Co., which has a quarry at Northfield, Vt., has incrased its capital stock from $5,000.00 to $10,000.00.

The Standard Stone and Brick Co., McClainville, W. Va., has recently added new machinery and kilns to its brick plant.

The Newkirk Stone and Constructing Co., Newkirk, Okla., which was recently incorporated, is equipping a stone plant.

The Queen City Supply Co. has been incorporated at Cincinnati, Ohio, to deal in contractors' supplies. Capital stock, $150,000.00.

The Tennessee Valley Fertilizer Co., Florence, Ala., contemplates building a phosphate rock crushing plant at Springer, Tenn.

The Shenango Pottery Co., New Castle, Pa., is increasing its capacity by additions to its plant, and has increased its capital stock from $150,000.00 to $200,000.00.

The New Gem Slate Co. has been incorporated at Danielsville, Pa., with a capital stock of $100,000.00 to manufacture roofing and school slates, blackboard slates, etc.

The Portland Granite Co. has been incorporated at Racine, Wis., with a capital stock of $25,000.00. The incorporators are: Leo A. Peil, John O'Laughlin and David H. Flett.

The Granite Cement Paving Co. is one of the new industries of Delaware, Ohio. The officers are: H. D. Jones, president; J. Taggart, vice president, and Murray Avery, secretary-treasurer.

R. M. Hardin, a contractor of Lexington, Ky., and others are planning to organize an asphalt company with a capital stock of $500,000.00 to develop asphalt fields of Eastern Kentucky.

Mark R. Morris and John C. Felber have formed a partnership under the name of Mark R. Morris & Co., at Youngstown, Ohio, and will handle building material and building tile, cement and mosaic marble work.

The Salt Springs Solar Salt Co., Syracuse, N. Y., held its annual election early in June and elected its board of trutees for the ensuing year, and at a subsequent meeting of the trustees, Edward B. Judson was elected president and J. G. Wynkoop, secretary.

The Bessemer Limestone Co., Youngstown, Ohio, at its recent stockholders' meeting at Pittsburg, Pa., elected J. G. Butler, Jr., president; C. S. Cook, secretary-treasurer, and Chas. M. Cook was advanced from the office of secretary-treasurer to general manager.

The Milwaukee Lime Co. has been incorporated at Milwaukee, Wis., with a capital stock of $25,000.00. The incorporators are: Henry Herman, C. E. Wenz and others.

Mr. A. W. Hockman, Salem, W. Va., has patented a new form of brick. The essential features of which is a secret mortar joint by which the brick can be laid and the joints not show.

The Pittsburg Vitrified and Paving Brick Co. has been incorporated at Kansas City, Mo., with a capital stock of $500,000.00. The incorporators are: Robert Nesch, J. H. Richards, David D. Hoag, David W. Troup, Thomas M. Waller, S. Harrison Wagner and others.

The Jeffrey Manufacturing Co., Columbus, Ohio, issues a catalogue of their screens which should be in the hands of all manufacturers in all lines of rock and clay products, for they make screens for every purpose and this catalogue tells something about the different kinds.

The Mexican Asphalt Paving and Construction Co. has been incorporated at Los Angeles, Cal., with a capital stock of $500,000.00. Among the incorporators are: Edward L. Doheney, R. J. Waters, C. A. Canfield, Carl Loenardt, J. A. Fairchild, A. P. Maginnis, Charles Wellborn, N. W. Myrick and E. W. Gilmore.

We have received a catalogue from the Toledo Asphalt Patcher Co., who illustrate and describe their machinery for paving and patching with asphalt and bituminous macadam. The book is dedicated to men who want to get the most out of life and is worthy of the attention of all interested in asphalt street paving.

R. H. Evans, president of the Detroit Brick and Tile Co., 819 Majestic Building, Detroit, Mich., was among our callers this month. Mr. Evans is also vice president of the Zenith Portland Cement Co., which is erecting a plant in Michigan, and has a project on foot to organize a company and build a cement plant in Southern Indiana.

The Philip Carey Manufacturing Co., manufacturers of magnesia flexible cement roofing, asbestos pipe covering and all kinds of asbestos and asphalt materials, say that business in their line has been exceedingly good this year and the outlook for the fall and winter season is unusually bright. They have been compelled to increase the capacity of their plant at Lockland, Ohio, and also the one in the East during the past year to take care of the trade.

The Purington Paving Brick Co., Galesburg, Ill., voluntarily increased the pay of its employes seven per cent. In explanation of this increase, which is to continue until October 1, an officer of the company explained to a newspaper man that the company had passed through a very successful season and desired that the employes should share in their prosperity, because the men made the brick and were justly entitled to a share of the increased prosperity.

Among our new advertisers this month is the United States Gypsum Co., with general offices at 184 LaSalle Street, Chicago, Ill, and branches at Ellicott Square, Buffalo, N. Y.; Fort Dodge, Iowa; New York Life Building, Omaha, Neb.; 480 Virginia Street, Milwaukee, Wis.; Lumber Exchange, Minneapolis, Minn.; foot of Tower Avenue, West Superior, Wis.; Hammond Building, Detroit, Mich.; Indianapolis, Ind; Sandusky, Ohio. This well-known concern makes Lieno wall finish and Cementico wall finish and have a long list of testimonials from people who have used same in regard to their good qualities. Among the prominent brands of their unsanded wall plaster we may mention the following: Alabaster Cement Plaster, Big 4 Cement Plaster, Diamond Cement Plaster, Duncombe's Cement Plaster, Flint Cement Plaster, Granite Cement Plaster, Ivory Cement Plaster, Imperial Cement Plaster, K. & N. Cement Plaster, O. K. Cement Plaster, Rock Cement Plaster, Roman Cement Plaster, Red White and Blue Cement Plaster, Waterloo Cement Plaster, Zenith Cement Plaster, Baker Cement Plaster. In prepared (sanded) wall plasters they have the following brands: Adamant Wall Plaster, Big 4 Wall Plaster, Diamond Wall Plaster, Granite Wall Plaster, Ivory Wall Plaster, Imperial Wall Plaster, Rock Wall Plaster, Zenith Wall Plaster, Baker Wall Plaster. They publish some booklets on the subject of plaster, which contain valuable tables and information for the uses of this material. These books will be mailed to any one interested in plastering who will write them and mention this paper.

Tell 'em you saw it in ROCK PRODUCTS.

Information Bureau

A Few of the Direct Inquiries Made to the Office of Rock Products During Last Month.

158.—I am in the market for elevating and conveying machinery.

159.—I want a mixer.

160.—We need pulverizers.

161.—We need screens.

162.—I want a rock drill.

163.—We want salt.

164.—We are in the market for lime or limestone.

165.—We want dryers.

166.—We want prospecting drills.

167.—I need blasting powder.

168.—We want oil.

169.—I wish to purchase a steam shovel of about one-half yard capacity, for railway construction.

170.—We are in the market for brick machinery.

171.—We want a dry press.

172.—We want 10 h. p. motor electric machinery.

173.—We want a salt crusher with capacity of 5 tons an hour.

174.—We want salt bags.

175.—We are in the market for second-hand steel wire rope 1½-in. in diameter.

176.—We wish to correspond with parties who are willing to co-operate in the organization and sale of stock for a $75,000.00 brick plant in Alabama.

177.—We will need several cars of bulk lime.

178.—I am in the market for dump cars.

179.—I need crowbars.

180.—I want to buy T rails, about 40 lb.

181.—We are in the market for phosphates.

182.—We would like to find potash-bearing feldspar.

183.—We want derricks.

184.—We need a hoisting engine.

185.—We are in the market for a rock crusher.

186.—Where can we get drill steel?

187.—We want wire rope.

188.—We want samples and prices on bags for plaster, 17x31.

189.—We are in the market for torpedo gravel, in carload lots.

Wm. Wirt Clarke & Son, Builders' Exchange, Baltimore, Md., have favored us with the third issue of their publication called, "Headquarters," which contains catchy little articles, of which the main point is to tell about the material handled by this firm.

The Macomber & Whyte Rope Co., 19-21 South Canal Street, Chicago, Ill., have just issued catalogue B-1902, which gives complete information with reference to the various grades of wire rope manufactured by them. The Macomber & Whyte Rope Co. also manufacture the Hallidie Tramway, and this specialty is also described and illustrated. Catalogue "B" also contains lists on all wire rope fixtures, wire rope sheaves for the transmission of power, hoisting sheaves, wire rope blocks, etc. A complete table covering transmission of power by wire rope and how to splice wire rope is also fully described. This company's factory is located at Coal City, Ill., and they have met with great success in the manufacturing business. This is particularly true with reference to the "Monarch" brand, which is largely used by mines, quarries, dredges, contractors, and, in fact, everywhere that a strictly high-grade rope is required.

Wanted and For Sale

One insertion, 25c a line; Two insertions, 50c a line; Three consecutive insertions with no change in the composition, 56c a line. Count eight words to a line; add two lines for a head.

BUSINESS OPPORTUNITIES.

THE KANSAS CITY BOLT AND NUT CO., Kansas City, Mo., desires your inquiries for bar iron, nuts and bolts, rivets, spikes, etc., and will quote favorable prices. Send for catalogue.

THE AMERICAN CHAIN CO., Zanesville, Ohio, manufacture "Special Dredge" quality chain, which gives unsurpassed satisfaction for quarry use. Prices reasonable. Can make quick shipments.

WANTED–MACHINERY.

BRICK MACHINE—Second-hand, but in good order. State full particulars to M. KILROY, Box 186, Genoa, Ill.

PARTIES who want machinery, will hear something to their advantage by sending list of exact requirements to R, care ROCK PRODUCTS.

FOR SALE–MATERIAL.

GRIT AND STONES—Send $1.50 to A. L. Simmons, Belfast, N. Y., and get a 100-lb. sample box containing 75 lbs. of "Simmons' Fine Brown Grit," that is *free from flint*, and 25 lbs. of soft, selected, coarse grit, f. o. b. Kitchen stones for knives, size 1 ft. long by 2-in. square, 50c each.

FOR SALE–MACHINERY.

BARGAINS in new and second-hand machinery. Address W, care ROCK PRODUCTS.

BRICK MACHINE—Perfect condition, "Hummer," made by Fate Company, Plymouth, Ohio. Address WM. H. COLLINS, Norfolk, Va.

LOCOMOTIVES—Narrow and standard gauge for light or heavy work; second-hand, but rebuilt at our own shop. Address SOUTHERN IRON AND EQUIPMENT CO., Atlanta, Ga.

ONE RUSSELL portable 16 h. p. engine and tubular boiler; one portable Keystone crusher, capacity 150 yards a day, complete with screens and elevators, weight 18,000 pounds; cheap. Address CARR & RADER, Jeffersonville, Ind.

FOR SALE–PLANT.

LET US SELL that plant for you. See head of department for rates.

QUARRY—The well-known Old Dominion Quarry Tract, containing 89½ acres, Chesterfield County, Va., five miles from Richmond; well equipped with all quarry machinery, and large No. 4 Gates crushing plant; capacity, 3 to 4 cars a day; doing a good business. Address J. H. MIDDENDORF, P. O. Box 271, Richmond, Va.

PLANT—I have for sale a new No. 6 Austin crusher, engine, boiler, derricks, hoisting engine, steam drills, a five-years lease on quarry, situated near Columbia, S. C., with a five-years contract with railway company to take all the ballast I can get out; also a No. 5 Champion crusher and all drills, engines, boilers, derricks and five-years contract with the railway company to take ballast, situated near Elberton, Ga. Both crushers and all machinery in good condition and practically new. Address COGGINS GRANITE CO., Elberton, Ga.

FOR SALE–MISCELLANEOUS.

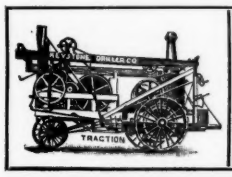
HAVE you anything to sell that will probably interest a reader in ROCK PRODUCTS? Try a four or five-line advertisement for three issues—it will find a buyer.

PROPERTY with a good vein of asphalt near the surface, located some distance from railroad, but railroad is being built. Address D. X., care ROCK PRODUCTS.

RESURRECT the dead capital in that machine you no longer need by inserting the advertisement here. Quick returns at a small cost. Try it.

WANTED–POSITION.

A SMALL SUM invested in a concisely-worded description of what you want *right here* will no doubt secure you numerous replies and find that desired position for you quickly.



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Soundings for Bridge Piers, prospecting for Iron Ore, testing Placer Ground, drilling Blast Holes for deep Railroad Cuts ahead of Steam Shovels, etc. Also contracts taken for drilling Wells for Railroads, Factories and City Water Works.
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ENQUIRE OF LORD, BOWLER & CO.
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STUCCO RETARDER.
We manufacture the strongest and most uniform retarder on the market. We pay freight on all sample orders and guarantee our goods to be equal, if not superior, to any on the market .. ..
WRITE FOR PRICES.
THE BINNS STUCCO RETARDER CO.
UHRICHSVILLE, OHIO.

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W. H. HAHN, Prest. J. K. SHARPLESS, Treas. C. E. RANDALL, Sec'y.
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CATAWISSA, PA., U. S. A.
Car Wheels, Castings, Forgings, Flat Cars, Mine and Dump Cars,
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We Manufacture All Kinds of
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Made of the Best Dry Lumber.
We Make a Specialty of Foot
PALLETS
As per cut, with special Hand Hole, which have given the very best satisfaction. If you want good pallets write us for prices.
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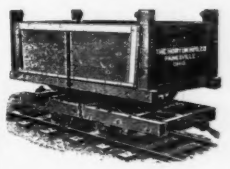
We Erect Complete Plants; also manufacture a full line of DUMP CARTS, DUMP CARS, HOISTS, ETC.
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THE HORTON MFG. CO., Painesville, Ohio.

STONE CUTTERS
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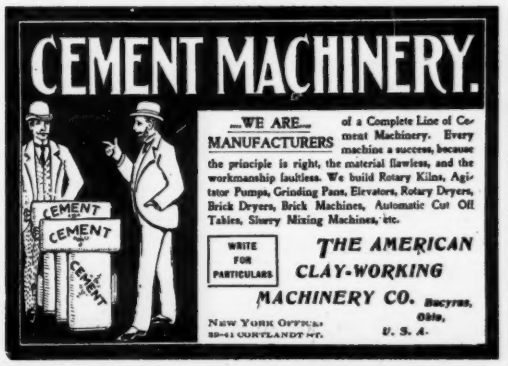
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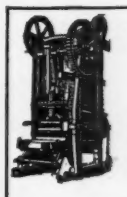
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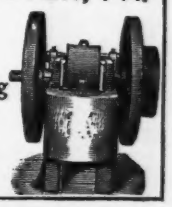
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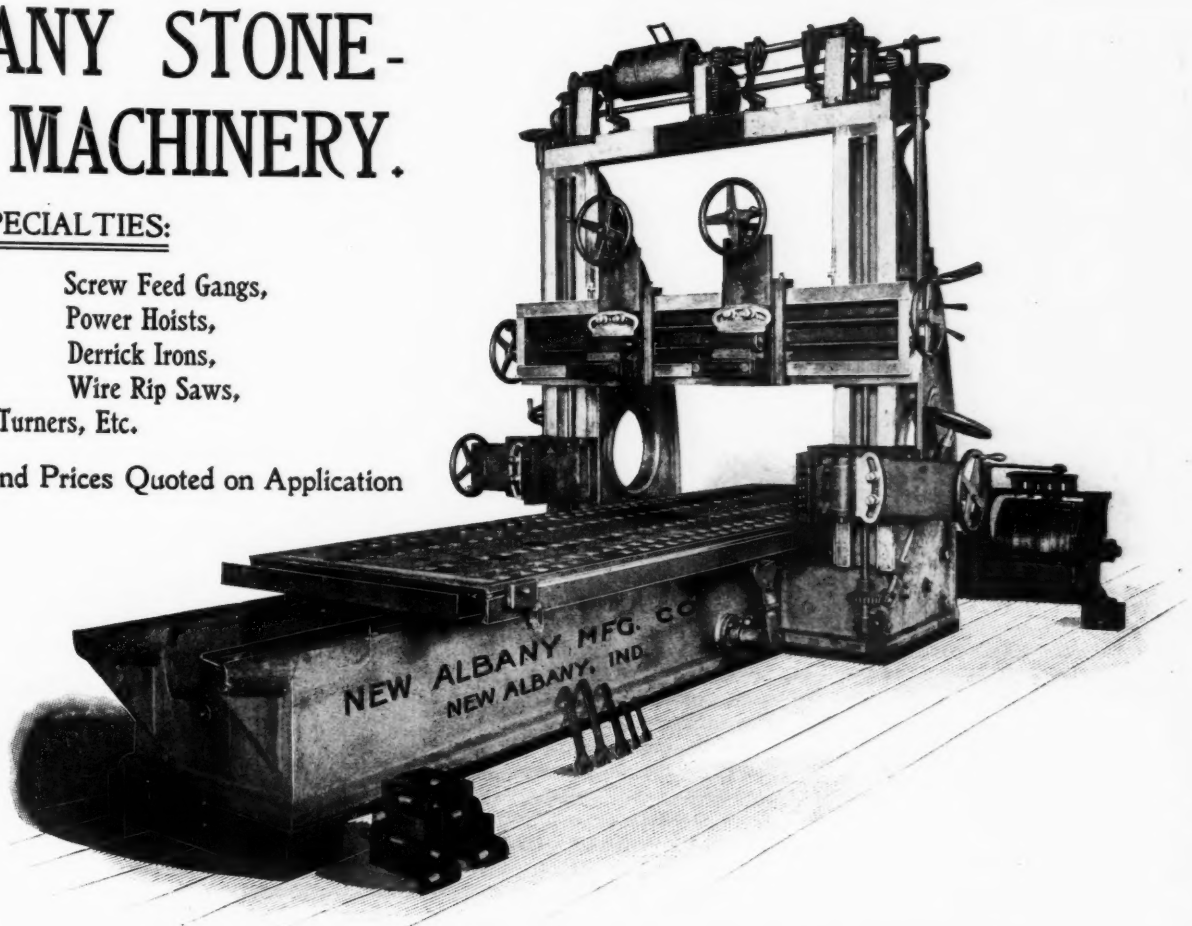

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